VOLUME NO. 1
(From pages 1 to 138, inclusive)

Includes the following Bureaus

---oOo---

EXPLANATORY NOTES

OF

INCREASES, DECREASES, AND CHANGES IN LANGUAGE

IN THE BUDGET FOR THE

DEPARTMENT OF AGRICULTURE

FOR THE

FISCAL YEAR ENDING JUNE 30, 1932

AND OF

WORK DONE UNDER EACH OF THE APPROPRIATION ITEMS

(CONFIDENTIAL UNTIL THE 1932 BUDGET
IS SUBMITTED TO CONGRESS)

INDEX

INDEX BY SUBAPPROPRIATIONS

INDEX BY SUBAPPROPRIATIONS (Continued)

INDEX BY SUBAPPROPRIATIONS (Continued)

-----0-----

DEPARTMENT OF AGRICULTURE
SUMMARY OF BUDGET RECORD 1932 BY BUREAUS

Bureau	Appropriation 1931	Budget 1932	Budget 1932 compared with Appropriation 1931: Increases	Decreases	Net Increase or Decrease
Secretary	$1,169,000	1,281,475	217,075	$104,600	+ 112,475
Information	1,352,000	1,424,921	76,041	3,120	+ 72,921
Library	104,000	111,640	7,640	- - -	+ 7,640
Experiment stations	4,751,500	4,754,560	33,490	30,430	+ 3,060
Extension Service	10,427,936	10,464,496	36,560	- - -	+ 36,560
Weather Bureau	4,113,600	4,575,500	496,900	35,000	+ 461,900
Animal Industry	15,626,935	16,191,785	615,450	50,600	+ 564,850
Dairy Industry	744,115	802,810	82,295	23,600	+ 58,695
Plant Industry	5,590,461	5,766,725	211,644	35,380	+ 176,264
Forest Service	19,899,730	21,405,620	1,530,890	25,000	+ 1,505,890
Chemistry and Soils	1,704,115	1,816,815	112,700	- - -	+ 112,700
Entomology	2,703,204	2,859,120	210,916	55,000	+ 155,916
Biological Survey	1,905,320	2,216,010	458,770	148,080	+ 310,690
Public Roads	208,400	180,840	2,440	30,000	- 27,560
Agricultural Engineering	459,500	583,840	134,340	10,000	+ 124,340
Agricultural Economics	6,485,390	7,157,767	749,377	77,000	+ 672,377
Home Economics	207,700	247,380	49,180	9,500	+ 39,680
Plant Quarantine	3,728,800	3,749,640	100,840	80,000	+ 20,840
Grain Futures	172,640	200,000	28,560	1,200	+ 27,360
Food and Drugs	1,616,000	1,822,652	206,652	- - - -	+ 206,652
Exp.Livestock Prod.Southern U.S	48,500	43,880	380	5,000	- 4,620
Collection of Seed Grain Loan	90,000	125,000	35,000	- - -	+ 35,000
Soil Erosion	185,000	255,000	70,000	- - -	+ 70,000
TOTAL FOREGOING	83,293,846	88,037,476	5,467,140	723,510	+ 4,743,630
SPECIAL ITEM:					
Mediterranean Fruit Fly	1,740,000	- - - - -	- - - - -	1,740,000	- 1,740,000
TOTAL EXCLUSIVE OF ROADS	85,033,846	88,037,476	5,467,140	2,463,510	+ 3,003,630
Total Road Funds	89,311,628.50	137,500,000	51,500,000	3,311,628.50	+48,188,371.50
TOTAL ALL PURPOSES	174,345,474.50	225,537,476	56,967,140	5,775,138.50	+51,192,001.50

F I N A N C I A L S T A T E M E N T

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
OFFICE OF THE SECRETARY:					
Salaries	$736,000	$796,275	$60,275	- - -	+ $60,275
Mechanical shops and power plant	102,000	126,000	24,000	- - -	+ 24,000
Miscellaneous Expenses	198,000	289,200	132,800	$41,600	+ 91,200
Rent of buildings	133,000(a)	70,000	- - -	63,000	- 63,000
Total	1,169,000	1,281,475	217,075	104,600	+ 112,475
OFFICE OF INFORMATION					
Salaries and expenses	410,000	424,921	18,041	3,120	+ 14,921
Printing and binding	942,000	1,000,000	58,000	- - -	+ 58,000
Total	1,352,000	1,424,921	76,041	3,120	+ 72,921
LIBRARY					
Salaries and Expenses	104,000	111,640	7,640	- - -	+ 7,640

(a) Includes $33,000 estimated unexpended balance of 1930 appropriation, reappropriated by Agricultural Act 1931.

FINANCIAL STATEMENT (continued)

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
OFFICE OF EXPERIMENT STATIONS:					
Payments to States, Hawaii and Alaska experiment stations:					
Hatch Act	$720,000	$720,000	- - -	- - -	- - -
Adams Act	720,000	720,000	- - -	- - -	- - -
Purnell Act	2,880,000	2,880,000	- - -	- - -	- - -
Hawaii Station Act . . .	20,000	22,000	$2,000	- - -	+ $2,000
Alaska Station Act . . .	- - -	15,000	15,000	- - -	+ 15,000
Total payments to Stations, etc.	4,340,000	4,357,000	17,000	- - -	+ 17,000
Salaries and expenses:					
Administration of Hatch, Adams, Purnell, Hawaii and Alaska Stations Act and of Insular stations	162,500	169,380	6,880	- - -	+ 6,880
Insular experiment stations:					
Alaska	85,000	60,600	4,350	$28,750	- 24,400
Hawaii	45,000	43,520	200	1,680	- 1,480
Porto Rico	59,000	63,560	4,560	- - -	+ 4,560
Guam	30,000	30,200	200	- - -	+ 200
Virgin Islands	30,000	30,300	300	- - -	+ 300
Total salaries and expenses	411,500	397,560	16,490	30,430	- 13,940
Total	4,751,500	4,754,560	33,490	30,430	+ 3,060

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
EXTENSION SERVICE:					
Payments to States, Hawaii and Alaska for Agricultural extension work:					
Supplemental, Smith-Lever	$1,580,000	$1,580,000	- - -	- - -	- - -
Capper-Ketcham Act .	1,480,000	1,480,000	- - -	- - -	- - -
Alaska	10,000	10,000	- - -	- - -	- - -
Additional cooperative agricultural extension work	1,000,000(b)	1,000,000	- - -	- - -	- - -
Permanent annual Smith-Lever	4,602,936	4,602,936	- - -	- - -	- - -
Total payment to States.	8,672,936	8,672,936	- - -	- - -	- - -
Salaries and expenses:					
General administrative expenses	15,000	15,260	$260	- - -	+ $260
Farmers' Cooperative demonstrations. . .	1,550,000(c)	1,574,430	24,430	- - -	+ 24,430
Agricultural Exhibits of Fairs.	120,000	129,870	9,870	- - -	+ 9,870
Cooperative Farm Forestry.	70,000	72,000	2,000	- - -	+ 2,000
Total salaries and expenses	1,755,000	1,791,560	36,560	- - -	+ 36,560
Total	10,427,936	10,464,496	36,560	- - -	+ 36,560

(b) Provided by second Deficiency Act, 1930
(c) Includes 1929 unexpended balance, reappropriated by Agricultural Act, 1931, $14,000.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
WEATHER BUREAU:					
Salaries and Expenses:					
General Administrative expenses	$136,000	$138,680	$2,680	- - -	+ $2,680
General Weather Service and Research	2,527,200(a)	2,615,520	88,320	- - -	+ 88,320
Horticultural Protection	50,400	61,300	10,900	- - -	+ 10,900
Aerology	1,400,000	1,760,000	395,000	35,000	+ 360,000
Total	4,113,600	4,575,500	496,900	35,000	+ 461,900

(a) Includes $15,000 unexpended balance 1929, reappropriated for 1931

FINANCIAL STATEMENT (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
ANIMAL INDUSTRY:					
Salaries and Expenses:					
General Administrative Expenses	$182,900	$188,325	$5,425	- - -	+ $5,425
Inspection and Quarantine.	795,000(a)	808,450	13,450	- - -	+ 13,450
Tuberculosis eradication:					
Operating expenses	1,190,000	1,269,900	79,900	- - -	+ 79,900
Indemnities.	5,000,000(b)	5,250,000	250,000	- - -	+ 250,000
Eradicating Cattle ticks	770,000(c)	775,640	5,640	- - -	+ 5,640
Animal Husbandry . . .	529,085	548,610	29,525	10,000	+ 19,525
Poultry Feeding and Breeding.	190,450	191,320	26,470	25,600	+ 870
Diseases of animals	300,000	362,920	62,920	- - -	+ 62,920
Contagious Abortion of animals.	100,000	100,000	---	- - -	- - -
Eradicating Hog Cholera	187,760(d)	190,240	2,480	- - -	+ 2,480
Control of Viruses . .	278,530	284,070	5,540	- - -	+ 5,540
Hog Cholera research .	30,710	31,720	1,010	- - -	+ 1,010
Eradicating Dourine. .	17,500	32,990	15,490	- - -	+ 15,490
Enforcement of packers and stockyards Act	415,000(e)	407,810	7,810	15,000	- 7,190
Total salaries and expenses . . .	9,986,935	10,441,995	505,660	50,600	+ 455,060
Meat inspection (supplemental)	2,640,000(f)	2,749,790	109,790	- - -	+ 109,790
Meat inspection (permanent annual) . .	3,000,000	3,000,000	- - -	- - -	- - -
Total	15,626,935	16,191,785	615,450	50,600	+ 564,850

(a) Includes $12,000 unexpended balance 1929, reappropriated for 1931.
(b) Includes $690,000 unexpended balance 1929, reappropriated for 1931.
(c) Includes $23,000 unexpended balance 1929, reappropriated for 1931.
(d) Includes $11,000 unexpended balance 1929, reappropriated for 1931.
(e) Includes $35,000 unexpended balance 1929, reappropriated for 1931,
(f) Includes $25,000 unexpended balance 1929, reappropriated for 1931.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
DAIRY INDUSTRY:					
General Administrative Expenses.....	$67,000	$75,400	$8,400	- - -	+ $8,400
Dairy Investigations...	677,115(a)	727,410	73,895	23,600	+ 50,295
Total	744,115	802,810	82,295	23,600	+ 58,695

(a) Includes $21,350 of the $40,000 appropriation for the South Carolina Experiment Station; $12,300 Field Station, Woodward, Oklahoma; $25,000 Dairy and Livestock Experiment Station, Tennessee, all from the Act of 1931.

FINANCIAL STATEMENT (continued)

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF PLANT INDUSTRY:					
Salaries and expenses:					
General administrative expenses.	$207,000	$211,360	$4,360	- - -	+ $4,360
Mycology and disease survey	59,500	60,340	840	- - -	+ 840
Citrus canker eradication.	45,000	40,100	160	5,060	- 4,900
Forest pathology	210,000	225,240	15,240	- - -	+ 15,240
Blister rust control . .	454,700	456,300	1,600	- - -	+ 1,600
Plant nutrition.	17,990	18,250	260	- - -	+ 260
Cotton production and diseases.	200,000	233,140	33,140	- - -	+ 33,140
Rubber, fiber and other tropical plants.. . . .	140,000	141,100	1,100	- - -	+ 1,100
Drugs and related plants	37,700	38,340	640	- - -	+ 640
Nematology	57,900	58,780	880	- - -	+ 880
Seed Testing laboratory.	77,800	78,740	940	- - -	+ 940
Cereal crops and diseases	560,000(a)	574,060	14,060	- - -	+ 14,060
Barberry eradication . .	379,920	377,600	880	3,200	- 2,320
Tobacco investigations .	80,310	91,620	11,310	- - -	+ 11,310
Sugar plants	412,926	413,700	774	- - -	+ 774
Botany	53,800	60,420	6,620	- - -	+ 6,620
Dry land agriculture . .	363,900	338,820	2,040	27,120	- 25,080
Western irrigation agriculture	150,600	153,940	3,340	- - -	+ 3,340
Horticultural crops and diseases.	1,277,000	1,375,360	98,360	- - -	+ 98,360
Phony Peach eradication.	85,000	85,180	180	- - -	+ 180
Gardens and grounds. . .	97,740	99,080	1,340	- - -	+ 1,340
Arlington farm	60,000	61,020	1,020	- - -	+ 1,020
Foreign plant introduction	222,000	228,140	6,140	- - -	+ 6,140
Forage crops and diseases	273,675(b)	279,375	5,700	- - -	+ 5,700
Biophysical laboratory .	36,000	36,720	720	- - -	+ 720
Operation of Natl.Arboretum	30,000(c)	30,000	- - -	- - -	- - -
Total	5,590,461	5,766,725	211,644	35,380	+ 176,264

(a) Includes $25,000 of the $125,000 Special Corn Borer Research reappropriated for 1931 from the $10,000,000 appropriated by the Joint Resolution of February 23,1927 for the eradication or control of the European corn borer.

(b) Includes $8,675 of the $40,000 appropriated for the South Carolina Experiment Station,Act of 1931, and $30,000 of the $125,000 Special Corn Borer Research reappropriated for 1931,from the $10,000,000 appropriated by the Joint Resolution of February 23,1927,for the eradication or control of the European corn borer.

(c) This appropriation carried in Miscellaneous Section of Act of 1931.

F I N A N C I A L S T A T E M E N T (continued)

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
FOREST SERVICE:					
Salaries and Expenses:					
General administrative expenses	$362,230	$370,640	8,410	- - -	+ $8,410
Protection and administration of National forests	7,108,600 (a)	7,295,240	186,640	- - -	+ 186,640
Fighting Forest fires .	100,000	100,000	- - -	- - -	- - -
Aerial fire control . .	50,000	50,000	- - -	- - -	- - -
Classification of lands	52,500	58,980	6,480	- - -	+ 6,480
Sanitation and Fire Prevention	57,000	67,000	10,000	- - -	+ 10,000
Planting National forests.	225,000	250,000	25,000	- - -	+ 25,000
Reconnaissance of forest resources . . .	121,000	131,260	10,260	- - -	+ 10,260
Improvements, national forests.	2,500,000	2,780,000	280,000	- - -	+ 280,000
Forest management . . .	492,500 (b)	547,000	54,500	- - -	+ 54,500
Range investigations. .	85,400 (c)	120,000	34,600	- - -	+ 34,600
Forest products	637,000 (d)	675,000	38,000	- - -	+ 38,000
Buildings Forest products laboratory . . .	100,000 (e)	800,000	700,000	- - -	+ 700,000
Forest survey	125,000	200,000	75,000	- - -	+ 75,000
Forest Economics. . . .	50,000	75,000	25,000	- - -	+ 25,000
Total salaries and expenses	12,066,230	13,520,120	1,453,890	- - -	+1,453,890

FINANCIAL STATEMENT(continued)

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
FOREST SERVICE(continued)					
Forest fire cooperation	$ 1,700,000	$ 1,775,000	$ 75,000	- - - -	+ $75,000
Cooperative distribution forest planting stock ...	93,000	95,000	2,000	- - - -	+ 2,000
Acquisition of additional forest lands	2,000,000	2,000,000	- - -	- - - -	- - -
Roosevelt Memorial	25,000(f)	- - - -	- - -	$25,000	- 25,000
Total, exclusive of permanent and indefinite appropriations and special funds	15,884,230	17,390,120	1,530,890	25,000	+1,505,890
Permanent and indefinite appropriations and special funds:					
Refunds to depositors ...	75,000	75,000	- - -	- - - -	- - -
National Forest Reservation Commission	500	500	- - -	- - - -	- - -
Payments to States and Territories	1,600,000	1,600,000	- - -	- - - -	- - -
Cooperative work, Forest Service	1,700,000	1,700,000	- - -	- - - -	- - -
Payments to school funds, Arizona and New Mexico.	40,000	40,000	- - -	- - - -	- - -
Roads and Trails for States	600,000	600,000	- - -	- - - -	- - -
Total, Permanent and indefinite appropriations and special funds	4,015,500	4,015,500	- - -	- - - -	- - -
Total	19,899,730	21,405,620	1,530,890	25,000	+ 1,505,890

(a) Includes $123,600 of subappropriation $130,000, Equipment and Supplies, Act 1931.

(b) Includes $4,000 of subappropriation $130,000, Equipment and Supplies, Act, 1931.

(c) Includes $400 of subappropriation $130,000, Equipment and Supplies, Act, 1931.

(d) Includes $2,000 of subappropriation $130,000, Equipment and Supplies, Act, 1931.

(e) The 1931 Act authorizes the Secretary to enter into contracts or incur obligations in amounts not exceeding $800,000.

(f) Provided by second deficiency Act, 1930.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF CHEMISTRY AND SOILS:					
Salaries and expenses:					
General administrative expenses.....	$58,540	$59,815	$1,275	- - -	+ $1,275
Agricultural chemical investigations.....	352,000(a)	370,150	18,150	- - -	+ 18,150
Color investigations.....	88,000	94,340	6,340	- - -	+ 6,340
Sirup and sugar investigations.....	37,600	37,975	375	- - -	+ 375
Insecticide and fungicide investigations.....	118,000(b)	129,200	11,200	- - -	+ 11,200
Dust explosions and farm fires.....	51,500	52,285	785	- - -	+ 785
Naval stores investigations	32,000	32,530	530	- - -	+ 530
Soil chemical investigations	40,000	43,170	3,170	- - -	+ 3,170
Soil physical investigations	18,100	19,015	915	- - -	+ 915
Fertilizer investigations	345,000	378,400	33,400	- - -	+ 33,400
Soil survey investigations	310,000	328,705	18,705	- - -	+ 18,705
Soil microbiology investigations.....	43,400	44,150	750	- - -	+ 750
Soil fertility investigations.....	209,975(c)	227,080	17,105	- - -	+ 17,105
Total	1,704,115	1,816,815	112,700	- - -	+ 112,700

(a) Includes $12,000 of the $125,000 Special Corn Borer research reappropriated for 1931 from the $10,000,000 appropriated by the Joint Resolution of February 23, 1927 for the eradication or control of the European Corn Borer.

(b) Includes $18,000 of the $125,000 Special Corn Borer research reappropriated for 1931 from the $10,000,000 appropriated by the Joint Resolution of February 23, 1927 for the eradication or control of the European Corn Borer.

(c) Includes $9,975 of the $40,000 appropriated for South Carolina Experiment Station, Act of 1931.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF ENTOMOLOGY:					
Salaries and Expenses:					
General Administrative Expenses.	$93,000	$94,380	$1,380	- - -	+ $1,380
Deciduous fruit insects. .	454,210(a)	474,950	20,740	- - -	+ 20,740
Subtropical plant insects.	166,500	179,415	12,915	- - -	+ 12,915
Truck crop insects	397,474	419,185	26,711	$5,000	+ 21,711
Forest insects	220,000	243,590	23,590	- - -	+ 23,590
Cereal and forage insects.	545,000	586,220	41,220	- - -	+ 41,220
Cotton insects	303,120	304,820	1,700	- - -	+ 1,700
Insects affecting man and animals	131,000	159,500	28,500	- - -	+ 28,500
Stored products insects. .	96,900	136,920	40,020	- - -	+ 40,020
Taxonomy and insect interrelations	171,000	184,720	13,720	- - -	+ 13,720
Bee culture.	75,000	75,420	420	- - -	+ 420
Purchase of Barnes Collection of Lepidoptera	50,000(b)	- - -	- - -	50,000	- 50,000
Total	2,703,204	2,859,120	210,916	55,000	+ 155,916

(a) Includes $60,000 estimated unexpended balance of the $100,000 provided for 1930-31, in the first deficiency Act, 1930 for the oriental fruit moth work.

(b) Provided by second deficiency Act, 1930.

FINANCIAL STATEMENT (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF BIOLOGICAL SURVEY:					
Salaries and expenses:					
General administrative expenses.....	$77,520	$83,620	6,100	- - -	+ $6,100
Maintenance of mammal and bird reservations.....	80,000	88,330	12,410	4,080	+ 8,330
Food habits of birds and animals.....	99,700(a)	107,660	7,960	- - -	+ 7,960
Control of predatory animals and injurious rodents.....	574,150(a)	590,480	16,330	- - -	+ 16,330
Production and conservation of fur-bearing animals.....	59,000	64,360	5,360	- - -	+ 5,360
Biological Investigations...	72,950(a)	83,110	10,160	- - -	+ 10,160
Protection of migratory birds	192,000	220,120	38,120	10,000	+ 28,120
Reindeer, game and fur-bearers in Alaska.....	167,000	155,650	10,650	22,000	- 11,350
Total salaries and expenses.....	1,322,320	1,393,330	107,090	36,080	+ 71,010
Upper Mississippi River Refuge					
Acquisition of land.....	150,000	150,000	- - -	- - -	- - -
Administrative expenses.....	47,000	47,780	780	- - -	+ 780
Bear River Migratory Bird Refuge:					
Acquisition of land.....	112,000(b)	- - -	- - -	112,000	-112,000
Administrative expenses.....	19,000	19,900	900	- - -	+ 900
Migratory Bird Conservation Act					
Migratory bird conservation refuges.....	200,000	400,000	200,000	- - -	+200,000
Migratory bird conservation commission.....	5,000	5,000	- - -	- - -	- - -
Cheyenne Bottoms Migratory Bird refuge.....	50,000(c)	200,000	150,000	- - -	+150,000
Total	1,905,320	2,216,010	458,770	148,080	+310,690

(a) The 1931 appropriation of $680,000 for Food Habits of Birds and Animals, $99,700 remains in this appropriation, $574,150 is transferred to Control of Predatory animals and injurious rodents and $6,150 is included in the $72,950 shown for Biological investigations.

(b) Includes $37,000 estimated unexpended balance of $75,000 provided by Act, 1930, reappropriated by Act, 1931.

(c) Provided by second deficiency Act, 1931.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF PUBLIC ROADS:					
Salaries and expenses:					
General administrative expenses	$70,500	$41,260	$760	$30,000	- $29,240
Highway investigations	(a)137,900	139,580	1,680	- -	+ 1,680
Total	208,400	180,840	2,440	30,000	- 27,560
BUREAU OF AGRICULTURAL ENGINEERING:					
Salaries and expenses:					
General administrative expenses	- - -	30,000	30,000	- - -	+ 30,000
Agricultural engineering investigations . .	(b)459,500	553,840	104,340	10,000	+ 94,340
Total .	459,500	583,840	134,340	10,000	+ 124,340

(a) Exclusive of $394,500 transferred to Bureau of Agricultural Engineering.
(b) Includes $394,500 transferred from Bureau of Public Roads and $65,000 of the $100,000 provided by second deficiency act, 1930, for "Cotton Ginning Investigations."

FINANCIAL STATEMENT (continued)

Detail by Subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF AGRICULTURAL ECONOMICS:					
Salaries and expenses:					
General administrative expenses	$286,000	$290,030	$4,030	- - -	+ $4,030
Farm management and practise	464,090(a)	480,760	16,670	- - -	+ 16,670
Marketing and distributing farm products	871,800(b)	900,000	28,200	- - -	+ 28,200
Crop and livestock estimates.	797,000	804,120	7,120	- - -	+ 7,120
Foreign competition and demand	153,000	395,880	242,880	- - -	+ 242,880
Market inspection of farm products	525,000	550,026	25,026	- - -	+ 25,026
Market news service	1,385,000	1,427,920	42,920	- - -	+ 42,920
Cotton statistics	420,000	420,000	- - -	- - -	- - -
Tobacco stocks and standards	25,000	25,000	- - -	- - -	- - -
Perishable agricultural commodities act	50,000(c)	350,000	300,000	- - -	+ 300,000
Total salaries and exps.	4,976,890	5,643,736	666,846	- - -	666,846
Enforcement of cotton futures and cotton standards acts .	234,500	236,560	2,060	- - -	+ 2,060
Enforcement of grain standards act	840,000(d)	863,571	23,571	- - -	+ 23,571
Administration of U.S.Warehouse act	256,000(d)	312,900	56,900	- - -	+ 56,900
Enforcement of standard container, hamper and produce agency acts	45,000	45,000	- - -	- - -	- - -
Completion of wool work . .	8,000	6,000	- - -	2,000	- 2,000
Wool marketing studies . . .	50,000	50,000	- - -	- - -	- - -
Operation of center market .	75,000(c)	- - -	- - -	75,000	- 75,000
Total	6,485,390	7,157,767	749,377	77,000	+ 672,377

(a) Includes $40,000 of the $125,000 Special Corn Borer research reappropriated for 1931 from the $10,000,000 appropriated by the Joint Resolution of February 23,1927 for the eradication or control of the European corn borer.
(b) Includes $20,000 unexpended balance 1929 reappropriated 1931 and $35,000 of the $100,000 provided by second deficiency Act,1930,for cotton ginning investigations.
(c) Provided by second deficiency act, 1930.
(d) Includes $15,000 of unexpended balance 1929, reappropriated 1931.

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
BUREAU OF HOME ECONOMICS:					
Salaries and expenses:					
General administrative expenses	$18,500	$28,320	$9,820	- - -	+ $9,820
Home economics investigations	189,200	219,060	39,360	$9,500	+ 29,860
Total	207,700	247,380	49,180	9,500	+ 39,680

F I N A N C I A L S T A T E M E N T (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
PLANT QUARANTINE AND CONTROL ADMINISTRATION:					
Salaries and expenses:					
General administrative expenses	$73,000	$88,000	$15,000	- - -	+ $15,000
Enforcement of foreign plant quarantine	730,000(a)	800,000	70,000	- - -	+ 70,000
Transit inspection service	40,000	43,000	3,000	- - -	+ 3,000
Control and prevention of spread of pink boll worm .	497,000	497,000	- - -	- - -	- - -
Control and prevention of spread, Parlatoria date scale	65,000	65,510	510	- - -	+ 510
Control and prevention of spread of Thurberia weevil	34,300	34,650	350	- - -	+ 350
Control and prevention of spread of gypsy and brown-tail moths	647,500	648,580	1,080	- - -	+ 1,080
Control and prevention of spread, European corn borer	1,000,000	950,000	- - -	50,000	- 50,000
Control and prevention of spread, Japanese and Asiatic beetles	475,000	445,000	- - -	30,000	- 30,000
Control and prevention of spread, White pine blister rust	10,000	10,400	400	- - -	+ 400
Control and prevention of phony peach disease. . .	12,000	12,000	- - -	- - -	- - -
Control and prevention of spread, of Mexican fruit worm	115,000	125,000	10,000	- - -	+ 10,000
Certification of exports	30,000(a)	30,500	500	- - -	+ 500
Total	3,728,800	3,749,640	100,840	80,000	+ 20,840
GRAIN FUTURES ADMINISTRATION:					
Enforcement of Grain Futures Act	172,640(b)	200,000	28,560	1,200	+ 27,360

(a) Includes $10,000 unexpended balance 1929, reappropriated 1930.
(b) Includes $17,640 provided by second deficiency Act, 1930.

FINANCIAL STATEMENT (continued)

Detail by subappropriations

Budget and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
FOOD AND DRUG ADMINISTRATION:					
Salaries and expenses:					
General administrative expenses	$104,000	$105,685	$1,685	- - -	+ $1,685
Enforcement of food and drugs act	1,125,000	1,325,000	200,000	- - -	+ 200,000
Enforcement of the tea importation act	43,800	44,380	580	- - -	+ 580
Enforcement of the naval stores act	39,500	39,870	370	- - -	+ 370
Enforcement of the insecticide act.	224,000	227,035	3,035	- - -	+ 3,035
Enforcement of the milk importation act.	53,000	53,632	632	- - -	+ 632
Enforcement of the caustic poison act	26,700	27,050	350	- - -	+ 350
Total	1,616,000	1,822,652	206,652	- - -	+ 206,652

FINANCIAL STATEMENT (continued)

Detail by subappropriations

Bureau and Item	Budget 1932 compared with Appropriation 1931				
	Appro. 1931	Budget Allowance 1932	Increase	Decrease	Net Increase or Decrease
MISCELLANEOUS					
Exp. in livestock in Southern U.S.	$48,500	$43,880	$380	$5,000	- $4,620.00
Collection of seed grain loans	90,000	125,000	35,000	- - -	+ 35,000.00
Soil Erosion Chemistry and soils	155,000 (a)	205,000	50,000	- - -	+ 50,000.00
Forest service . . .	30,000 (a)	50,000	20,000	- - -	+ 20,000.00
TOTAL FOREGOING . . .	83,293,846	88,037,476	5,467,140	723,510	+ 4,743,630.00
SPECIAL ITEM:					
Med. F.F.	1,740,000	- - -	- - -	1,740,000	- 1,740,000.00
TOTAL EXCLUSIVE OF ROADS . . .	85,033,846	88,037,476	5,467,140	2,463,510	+ 3,003,630.00
ROAD FUNDS:					
Forest roads and trails	11,000,000 (b)	12,500,000	1,500,000	- - -	+ 1,500,000.00
Cooperative const. of rural post roads . . .	75,000,000	125,000,000	50,000,000	- - -	+ 50,000,000.00
Mt. Vernon Memorial Highway . .	2,000,000	- - -	- - -	2,000,000	- 2,000,000.00
Road and Bridge Flood Relief, Ga. S. Carolina.	1,311,628.50 (c)	- - -	- - -	1,311,628.50	- 1,311,628.50
TOTAL ROAD FUNDS . . .	89,311,628.50	137,500,000	51,500,000	3,311,628.50	+48,188,371.50
TOTAL ALL PURPOSES. .	174,345,474.50	225,537,476	56,967,140	5,775,138.50	+51,192,001.50

(a) Appropriation for Soil Erosion, 1931 for $185,000 was carried in Salaries and Expenses, Bureau of Chemistry and Soils.
(b) Includes $3,500,000 provided by second deficiency Act, 1930.
(c) Provided by second deficiency Act, 1930.

RECONCILIATION BETWEEN TOTAL OF 1931 APPROPRIATIONS AS SHOWN BY 1932 BUDGET ($173,145,474.50) AND TOTAL OF AVAILABLE FUNDS FOR 1931 AS SHOWN IN THIS STATEMENT ($174,345,474.50)

Total 1931 Appropriations as shown by the Bureau of the Budget			$173,145,474.50
Plus: Reappropriations of definite unexpended balances 1929, reappropriated for use in 1931		$1,020,000	
Reappropriations of indefinite unexpended balances, estimated as follows:			
Rent of Buildings, Department of Agriculture.	$33,000		
Bear River Migratory Bird Refuge	37,000		
Total of above items		70,000	
Estimated unexpended balances of 1930-1931 appropriation provided by First Deficiency Act, 1930, remaining available for 1931: Salaries and Expenses, Bureau of Entomology: (Deciduous Fruit Insects)		60,000	
Appropriation for Purchase of Barnes Collection of Lepidoptera provided by Second Deficiency Act, 1930, to remain available until June 30, 1931 . . .		50,000	1,200,000.00
Total 1931 available funds as shown in this statement			$174,345,474.50

- - - - 0 - - - -

SUMMARY OF SALARY ADJUSTMENTS EFFECTIVE JULY 3, 1930, UNDER THE PROVISIONS OF THE BROOKHART SALARY ACT (PUBLIC NO. 523, 71ST CONGRESS) AMENDING THE CLASSIFICATION ACT OF 1923, AS INTERPRETED BY THE DECISION OF THE COMPTROLLER GENERAL, DATED JULY 16, 1930 (DECISION A-32589)

Bureau	Number of employees affected			Amount included in Budget for 1932 to cover adjustments
	D. C.	Field	Total	
Office of the Secretary	108	---	108	$ 7,615
Office of Information	54	---	54	3,921
Library	6	---	6	560
Office of Experiment Stations...	16	8	24	2,980
Extension Service	51	2	53	4,260
Weather Bureau	45	87	132	11,300
Bureau of Animal Industry	93	376	469	44,143
Bureau of Dairy Industry	35	9	44	4,209
Bureau of Plant Industry	206	119	325	30,078
Forest Service	62	516	578	55,370
Bureau of Chemistry and Soils ..	103	4	107	10,057
Bureau of Entomology	46	88	134	13,920
Bureau of Biological Survey	38	63	101	9,394
Bureau of Public Roads (including Agricultural Engineering).	89	137	226	2,920
Bureau of Agr'l Economics	317	240	557	45,145
Bureau of Home Economics	9	---	9	-----
Plant Quarantine & Control Adm..	39	94	133	9,000
Grain Futures Administration....	3	6	9	840
Food & Drug Administration.....	57	73	130	12,255
Seed Loan Office.....	2	1	3	320
Total	1,379	1,823	3,202	268,287 (a)

(a) Exclusive of approximately $30,000 Brookhart salary adjustments of employees included in above personnel lists, principally those carried on special appropriations, such as Federal Aid and Forest Road funds, etc.

---------0---------

UNDER-AVERAGE SALARY GRADE ADJUSTMENTS.

The schedules of estimated expenditures for personal services accompanying the Budget for 1932 indicate differences between 1931 and 1932 totaling $428,774 for increased salaries, toward helping to bring under-average salary grades nearer to the grade averages. Of this amount $223,820 is submitted as increased funds requested for 1932, while the remaining $204,954 is estimated to be met from current funds for 1932.

Taking the payroll as of June 30, 1930, as a base figure and making allowance for estimated salary increases during 1931, $1,442,907 was the amount estimated as necessary to bring the under-average grades up to the average. The allocation of $428,774, therefore, is approximately 30% of this amount, and is part of a general submission in the 1932 Budget dealing with the question of salary grade averages.

The table which follows sets forth this situation for the various bureaus and for the Department as a whole.

DEPARTMENT OF AGRICULTURE

Summary of Adjustments under Under-Average Salary Grades, Budget Estimates for 1932.

Bureau	Estimated, 1932		Balance required, 1932, to bring under-average grades to average, using payroll 6-30-30 as base	Allocation in Budget, 1932, for increased salaries, toward bringing under-average grades nearer to average	Estimates, 1932	
	Expenditures for personal services	No. of employees			Add'l funds for increased salaries	Amount for increased salaries to be met from current funds
Office of the Secretary:						
D. C.	$ 893,675	570	$ 20,840	$ 6,240	$ 6,240	$ -----
Field	28,600	6	2,000	600	600	-----
Total	922,275	576	22,840	6,840	6,840	-----
Office of Information:						
D. C.	399,921	199	13,399	3,960	3,960	-----
Library:						
D. C.	75,140	39	3,516	1,020	1,020	-----
Office of Experiment Stations:						
D. C.	159,600	56	4,910	1,080	-----	1,080
Field	134,240	39	4,840	1,200	-----	1,200
Total	293,840	95	9,750	2,280	-----	2,280
Extension Service:						
D. C.	539,630	207	12,870	3,840	-----	3,840
Field	39,600	16	560	120	-----	120
Total	579,230	223	13,430	3,960	-----	3,960
Weather Bureau:						
D. C.	543,580	250	14,300	4,260	4,260	-----
Field	2,126,760	1,073	120,577	36,120	36,120	-----
Total	2,670,340	1,323	134,877	40,380	40,380	-----

Summary of Adjustments under Under-Average Salary Grades (Continued)

Bureau	Estimated 1932		Balance required, 1932, to bring under-average grades to average, using payroll 6-30-30 as base	Allocation in Budget, 1932, for increased salaries, toward bringing under-average grades nearer to average	Estimates, 1932	
	Expenditures for personal services	No. of employees			Add'l funds for increased salaries	Amount for increased salaries to be met from current funds
Bureau of Animal Industry:						
D. C.	$ 898,407	358	$ 32,585	$ 12,760	$ 12,760	$ -----
Field	8,140,138	3,451	430,330	125,210	125,210	-----
Total	9,038,545	3,809	462,915	137,970	137,970	-----
Bureau of Dairy Industry:						
D. C.	351,094	131	2,808	2,220	400	1,820
Field	201,277	113	7,412	840	-----	840
Total	552,371	244	10,220	3,060	400	2,660
Bureau of Plant Industry:						
D. C.	1,839,624	745	34,866	10,440	5,611	4,829
Field	2,507,612	914	20,480	6,120	1,720	4,400
Total	4,347,236	1,659	55,346	16,560	7,331	9,229
Forest Service:						
D. C.	612,031	237	4,980	1,440	-----	1,440
Field	6,495,617	2,619	247,327	74,160	-----	74,160
Total	7,107,648	2,856	252,307	75,600	-----	75,600
Bureau of Chemistry and Soils:						
D. C.	1,293,050	499	47,752	14,280	4,484	9,796
Field	302,155	106	4,996	1,440	130	1,310
Total	1,595,205	605	52,748	15,720	4,614	11,106
Bureau of Entomology:						
D. C.	488,750	185	5,090	1,500	-----	1,500
Field	1,390,000	499	18,940	5,640	-----	5,640
Total	1,878,750	684	24,030	7,140	-----	7,140

Summary of Adjustments under Under-Average Salary Grades (Continued)

Bureau	Estimated, 1932		Balance required, 1932, to bring under-average grades to average, using payroll 6-30-30 as base	Allocation in Budget, 1932, for increased salaries, toward bringing under-average grades nearer to average	Estimates, 1932	
	Expenditures for personal services	No. of employees			Add'l funds for increased salaries	Amount for increased salaries to be met from current funds
Bureau of Biological Survey:						
D. C.	$ 321,827	126	$ 3,940	$ 1,140	$ 340	$ 800
Field	628,745	258	11,640	3,480	-----	3,480
Total	950,572	384	15,580	4,620	340	4,280
Bureau of Public Roads:						
D. C.	735,433	319	11,040	3,300	700	2,600
Field	2,668,004	1,025	60,250	18,060	200	17,860
Total	3,403,437	1,344	71,290	21,360	900	20,460
Bureau of Agricultural Engineering:						
D. C.	139,230	47	2,210	660	-----	660
Field	242,168	84	10,790	3,180	-----	3,180
Total	381,398	131	13,000	3,840	-----	3,840
Bureau of Agricultural Economics:						
D. C.	2,444,439	1,077	53,717	15,880	-----	15,880
Field	2,945,746	1,018	102,395	29,460	4,231	25,229
Total	5,390,185	2,095	156,112	45,340	4,231	41,109
Bureau of Home Economics:						
D. C.	225,677	97	8,440	2,520	680	1,840
Plant Quarantine & Control Adm.:						
D. C.	276,470	114	4,780	1,380	-----	1,380
Field	1,666,836	744	71,970	21,540	1,710	19,830
Total	1,943,306	858	76,750	22,920	1,710	21,210

Summary of Adjustments under Under-Average Salary Grades (Continued)

Bureau	Estimated 1932		Balance required, 1932, to bring under-average grades to average, using payroll 6-30-30 as base	Allocation in Budget, 1932, for increased salaries toward bringing under-average grades nearer to average	Estimates, 1932	
	Expenditures for personal services	No. of employees			Add'l funds for increased salaries	Amount for increased salaries to be met from current funds
Grain Futures Administration:						
D. C.	$ 49,160	18	$ 1,615	$ 480	$ 360	$ 120
Field	115,885	49	2,710	660	660	-----
Total	165,045	67	4,325	1,140	1,020	120
Food and Drug Administration:						
D. C.	621,963	231	15,870	4,740	4,740	-----
Field	938,224	377	25,722	7,684	7,684	-----
Total	1,560,187	608	41,592	12,424	12,424	-----
Farmers' Seed Loan Office:						
D. C.	50,000	26	440	120	-----	120
Field	57,720	35	-----	-----	-----	-----
Total	107,720	61	440	120	-----	120
Grand Total:						
D. C.	12,958,701	5,531	299,968	93,260	45,555	47,705
Field	30,629,327	12,426	1,142,939	335,514	178,265	157,249
D. C. and Field	43,588,028	17,957	1,442,907	428,774	223,820	204,954

---------0------

EXPLANATORY NOTES BY BUREAUS

OFFICE OF THE SECRETARY

(a) SALARIES

Appropriation, 1931	$736,000
Brookhart Act Adjustments ...	7,115
Total, 1931	743,115
Budget, 1932	796,275
Increase	53,160

(Note- There is an apparent increase of $53,160 in this item, but since six employees with salaries aggregating $21,320 have been transferred from bureau rolls with corresponding reductions in other appropriations, the actual increase is $31,840.)

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Secretary of Agriculture ...	$15,000	$15,000	$ 15,000	-----	-------
Assistant Secretary and other personal services ..	705,065	720,821	773,981	$47,320(1)	$5,840
Extra labor and emergency employments	7,291	7,294	7,294	-----	------
Totals	727,356	743,115	796,275	47,320	5,840

The increase of $53,160 is submitted for the following purposes:

$5,840 Under-average Salary Grade Adjustments.

$47,320 increase in working funds, as follows:

(1) $21,320 for the transfer of six detailed employees, with corresponding reductions in bureau appropriations:

(a) $15,000 for three senior attorneys, transferred from the appropriation for enforcement of the Packers and Stockyards Act, Bureau of Animal Industry. Legal work in connection with the enforcement of the Packers and Stockyards Act is now under the supervision of the Solicitor of the Department and the salaries of these attorneys therefore should be transferred to the appropriation for salaries, Office of the Secretary.

(b) $3,120 for an assistant clerk ($1,860) and a senior laborer ($1,260), transferred from the appropriation for salaries and general expenses, Office of Information. These employees are assigned to the central stores section of the Division of Purchase, Sales, and Traffic, one of the units of the Office of the Secretary, which has taken over the supply work for the Office of Information.

(c) $3,200 for an attorney, transferred from the appropriation for barberry eradication, Bureau of Plant Industry. This employee is engaged in work under the supervision of the Solicitor. He was so assigned from the Bureau of Plant Industry, temporarily at first, but as his assignment has become permanent his salary therefore should be transferred to the appropriation for salaries, Office of the Secretary.

(2) $18,920 for the transfer of eight detailed employees, without reduction in other rolls:

(a) $15,620 for the following employees engaged in salary classification and organization investigations:

Designation	Salary
Senior administrative officer ..	$4,600
Junior administrative officer ..	3,500
Assistant investigator	2,600
Assistant clerk-stenographer ...	1,680
Assistant clerk	1,620
Senior stenographer	1,620
	15,620

The work performed by these employees is required for the proper administration of the Classification Act of 1923 and by the subsequent legislation providing for a survey of Field Services. Organization charts are made for the several divisions and subdivisions of the Department to bring out the different degrees of responsibility of the various positions when they are classified and as a means of suggesting betterments in organization for more efficient service. Careful consideration is given to the job specifications for each employee's position as a basis for fair comparison and judgment as to the proper classification grade for each position and as an aid in the more effective assignment of employees to the duties they are best fitted to perform.

(b) $1,800 for one clerk-stenographer, carried on the roll of the Bureau of Biological Survey. This employee is assigned to the Office of the Solicitor of the Department and is engaged principally on work in connection with the enforcement of the Migratory Bird Treaty Act.

(c) $1,500 for one guard (watchman), carried on the roll of the Bureau of Plant Industry. This employee is engaged, under the supervision of the Captain of the Watch, in patrolling and guarding the gardens and grounds of the Department.

(3) $7,080 for six additional employees:

(a) $2,520 for two additional telephone operators, at $1,260 each. The services of these additional operators are urgently needed, one to relieve the overload of the present force and one to fill a new position on the telephone switchboard of the Department made necessary by the increasing telephone business of the Department. The telephone service in the Department has fallen considerably below standard. The telephone force of the Department has been declared by the telephone experts of the Bureau of Standards to be inadequate. In a three-day traffic test held in November, 1927, 14,778 calls were handled over the Department's switchboard, while in a similar test held in April, 1930, there were 23,494 calls, an increase of approximately 60%, handled by the same force.

(b) $2,400 for two additional building guards, at $1,200 each. These additional guards are urgently needed so as to permit the granting to members of the regular guard force of four days absence each month in lieu of having to work on Sundays and holidays.

(c) $2,160 for two additional unskilled laborers, at $1,080 each. These additional laborers are required to assist in the upkeep of the new administration building, which has considerably more area to be cleaned than the old building. In addition to corridors, staircases, and six men's toilets, this force takes care of the front and rear approaches and the basement. The present force is inadequate to render this service properly in addition to the numerous calls for their services in the shifting of furniture, and other heavy work.

Activities under appropriation for Salaries, Office of the Secretary.

This appropriation provides salaries for employees of the Office of the Secretary of Agriculture, Assistant Secretary, the Director of Scientific Work, the Director of Regulatory Work (office force paid by Food and Drug Administration), the director of Extension Work (office force paid by Extension Service), the Director of Personnel and Business Administration, the personnel, organization and classification offices, the budget, finance, disbursing, and accounting offices, the offices dealing with purchases, sales, and traffic, the office of the Chief Clerk, mails and files, building maintenance and guard force, telephone and telegraph, post office, etc., and the Office of the Solicitor.

Explanation of Change in Language

The insertion of the following provision is recommended in order to give effect, as to the personnel of the Department, to the authorization in the Act of June 26, 1930, for the furnishing to civilian officers and employees of the Government permanently stationed in foreign countries of living quarters with heat, fuel, and light, or allowance in lieu thereof, provided appropriation is made therefor:

"Provided further, That not to exceed $55,000 of the appropriations available for salaries and expenses of officers and employees of the Department of Agriculture permanently stationed in foreign countries may be used for payment of allowances for living quarters, including heat, fuel, and light, as authorized by the Act approved June 26, 1930, (46 Stat., p.818);"

The Act of June 26, 1930, above referred to, reads as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That under such regulations as the heads of the respective departments concerned may prescribe and the President approve, civilian officers and employees of the Government having permanent station in a foreign country may be furnished, without cost to them, living quarters, including heat, fuel, and light, in Government-owned or rented buildings and, where such quarters are not available, may be granted an allowance for living quarters, including heat, fuel, and light, notwithstanding the provisions of section 1765 of the Revised Statutes (U.S.C., title 5, sec. 70): Provided, That said rented quarters or allowances in lieu thereof may be furnished only within the limits of such appropriations as may be made therefor, which appropriations are hereby authorized; Provided further, That the provisions of this Act shall apply only to those civilian officers and employees who are citizens of the United States."

Of the departments affected by this legislation only one, the State Department, has made regulations. The others, Agriculture included, are planning joint consideration with a view to uniformity, as far as feasible, in the allowances as between departments. But since the State Department has by far the largest foreign service, and since its regulations have been approved by the President, it is probable that the allowances ultimately adopted by the other branches will not greatly differ from the State Department's scale. In the State Department regulations three elements are used: first, rank of officer - chief of mission, principal officer, subordinate officer; second, domestic status - the married officer or officer with accompanying family of whatever rank receives $150 per annum more than the single officer or those without

accompanying families; third, relative expensiveness of post of duty with respect to rent, heat, fuel and light. The existing foreign stations of the State Department are divided into five classes on the basis of such expense, with allowance steps of $150 between classes; for instance, an officer stationed in Montreal, which is in the fifth and most expensive class, receives $600 per year more than one stationed in Edinburgh, which is in the first and least expensive class. Only three bureaus in the Department - Agricultural Economics, Entomology, and Animal Industry - have at this time employees with permanent foreign station. The $55,000 authorization sought for foreign quarters, heat, and light allowance is based upon the following tabular statement and summary of bureau needs. The allowances correspond with those prescribed in the State Department regulations approved by the President, but the highest official rank in the State Department foreign service, "Chief of Mission," is not represented in the Department's estimates.

The proviso under the appropriation for Salaries, Office of the Secretary, serves as an authorization and limitation on the amounts which may be expended for allowances under the Act of June 26, 1930, the actual appropriations estimated to be expended being estimated under the various specific items as follows:

	Total Estimated	Increased Funds est., 1932
Bureau of Agricultural Economics:		
Foreign Competition and Demand	$29,075	$29,075
Bureau of Animal Industry:		
Eradication of Foot and Mouth Disease ..	1,550	---
Bureau of Entomology:		
Deciduous Fruit Insects	4,400	2,700
Sub-Tropical Plant Insects	6,075	5,675
Cereal and Forage Insects	6,700	4,900
Truck Crop Insects	725	325
Forest Insects	4,350	3,650
	22,250	17,250
Reserve Authorization	2,125	---
Total	55,000	46,325

A complete statement of the situation as applied to the Department of Agriculture is as follows:

ESTIMATE OF AMOUNTS NEEDED, FISCAL YEAR 1932, TO PROVIDE QUARTERS, HEAT, FUEL AND LIGHT FOR EMPLOYEES OF THE DEPARTMENT OF AGRICULTURE WITH FOREIGN STATION, ACT OF JUNE 26, 1930.

Bureau of Agricultural Economics.

Post	Class	Number of employees	Principal		Subordinate	
			Married	Single	Married	Single
Belgrade	II	2	$ 1,250	---	---	$ 650
Berlin	IV	4	(1,550 (1,550 (1,550	---	$ 1,400	---
Bombay	II	1	1,250	---	---	---
Buenos Aires	V	2	1,700	---	---	875
Cairo	III	1	1,400	---	---	---
Capetown	II	1	1,250	---	---	---
Copenhagen	IV	1	1,550	---	---	---
Kobe	III	1	1,400	---	---	---
London	IV	3	(1,550 (1,550	$ 950	---	---
Merseilles	II	1	1,250	---	---	---
Sidney	IV	2	1,550	---	---	800
Shanghai	III	3	(1,400 (1,400	---	1,250	---
Total		22	23,150	950	2,650	2,325

Total, $29,075

Bureau of Entomology

Yokohama	IV	3	1,550	---	1,400	800
Sydney	IV	1	-----	---	-----	800
Antibes	III	1	1,250	---	-----	---
Hyeres	III	3	1,400	---	(1,250 (1,250	---
Trujillo	III	1	1,400	---	-----	---
Mexico City	III	5	1,400	725	(1,250 (1,250	725
Santiago de las Vegas	III	2	-----	---	-----	(725 (725
Budapest	IV	3	1,550	---	(1,400 (1,400	---
Total		19	8,550	725	9,200	3,775

Total, $22,250

Bureau of Animal Industry

London	IV	1	1,550	---	-----	---

S U M M A R Y

Agricultural Economics	$29,075
Entomology	22,250
Animal Industry	1,550
Margin for unforeseen needs ...	2,125
Total	55,000

(b) COMPENSATION, MECHANICAL SHOPS AND POWER PLANT.

Appropriation, 1931	$102,000
Brookhart Act adjustments ..	500
Total, 1931	102,500
Budget, 1932	126,000
Increase	23,500

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Compensation, Mechanical Shops and Power Plant ..	$100,957	$102,500	$126,000	$22,500(1)	$1,000

The increase of $23,500 is submitted for the following purposes:

$1,000 Under-average Salary Grade Adjustments.

$22,500 increase in working funds, as follows:

(1) $9,780 for changing from direct to alternating electric current in the East and West Wings. It is deemed necessary to change the current characteristics in the East and West Wings from direct to alternating current for reasons involving economy in charges for current, interchangeability of equipment, and compliance with modern electrical practice. The current in the new administration building is alternating current, the current in the new extensible buildings which are to be erected for the Department will be alternating, and we are advised that alternating current will be used in all of the new buildings involved in the building program. It is desirable and economical therefore to have the current characteristics in the connected East and West Wings conform to the general plan. Twelve mechanics, for a period of six months each, with salaries aggregating $9,780, are estimated as necessary to accomplish the change. An item of $13,700 is included under the appropriation "Miscellaneous Expenses" for the supplies and materials necessary for this change.

(2) $12,720 for upkeep and repair of buildings. The Government has acquired five important buildings in Square 263, and in addition, is taking over numerous vacated dwelling houses in this square for conversion into quarters for Department units. These old dwelling houses are the property of the United States and the expenses for their repair and upkeep, as well as for the five important buildings in this square, will now fall upon the Department. $12,720 is estimated as necessary to provide for the salaries of eight mechanics for the performance of the work. An item of $12,000 for the supplies and materials necessary for this work is included under the appropriation for "Miscellaneous Expenses."

Activities under appropriation for Compensation, Mechanical Shops and Power Plant

This appropriation provides the compensation of the personnel in the Mechanical Shops and Power Plant of the Department. This force performs work in the repair and upkeep of buildings, operation of elevators, the construction of apparatus and models for the various bureaus of the Department, and the maintenance and operation of the power plant which furnishes heat, laboratory steam, vacuum, refrigeration, etc., to all buildings on or near the Department reservation. Under the law the work performed by the Mechanical Shops for the several bureaus of the Department is reimbursed to the appropriation at cost, but expenditures for general operations in the maintenance of the Department, such as the power plant, elevator service, repairs to plumbing, heating, and electric systems, and the like, which require practically the entire base appropriation, are not reimbursable.

(c) MISCELLANEOUS EXPENSES

Appropriation, 1931	$198,000
Budget, 1932	289,200
Increase	91,200

(Note- There is an apparent increase of $91,200 in this item, but since a non-recurring item of $40,000 provided in 1931 for new roofs for the East and West Wings, is dropped in 1932 together with a differential of $1,600 in the purchase and exchange of passenger-carrying vehicles, the actual increase is $132,800.)

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Miscellaneous Expenses ...	$174,818	$198,000	$289,200	$91,200

The increase of $132,800 is submitted for the following purposes:

(1) $16,100 for heat, light, and power involved in the operation of the new extensible building, which, it is expected, will be ready for occupancy during the winter of 1931, as follows:

(a) $7,000 to provide for the increase in fuel consumption for six months of the fiscal year 1932. Heat will be required for office rooms and laboratories comprising about 300,000 square feet, besides corridors, basement, toilet rooms, etc.

(b) $9,100 for the increase in consumption of electricity for six months of the fiscal year 1932. Electric current will be required for the proper lighting of the building, the operation of 10 elevators, and for electrically driven fans, office equipment, laboratory apparatus, etc.

(2) $15,000 for window blinds for the new extensible building. The new extensible building will have a total of 1,407 windows, not counting dormer windows, for which blinds will be required. The average cost of slat blinds in the new administration building is $15. As most of the windows in the new extensible building are smaller than those in the administration building, it is estimated that $11 per window, or a total of approximately $15,000, will cover the necessary installation.

(3) $10,000 for expense of moving into new extensible building. This estimate is based upon the cost to the Government of moving into the new Internal Revenue building, which was $21,849, the building having 550,000 square feet of space. The Department of Agriculture's new extensible building, with approximately 300,000 square feet of space, will require a proportionate amount to cover the expense of moving into it. Several large units, including the Forest Service and the Bureau of Public Roads, will be moved, involving the transfer of much heavy and valuable laboratory and scientific equipment. Also to be moved into the new extensible building is the Department Library, a task requiring much care and considerable labor and supervision. Other smaller units, including the Biological Survey, are, under present plans, to be moved into the extensible building.

(4) $60,000 for repairs to elevators, East and West Wings. It is deemed essential, in order to bring these elevators up to standard requirements in operation, to make them conform to the District of Columbia elevator code. These elevators are now more than twenty years old. They were never equipped with the floor interlocks and safety gates now required by building regulations in most large cities. While the District of Columbia elevator code cannot be legally enforced against the United States, the Department is not thereby relieved of the responsibility for making its elevators as safe as possible for employees and the public. The code requirements are wholly in the interest of safety and should be met. Necessary repairs and alterations to these elevators will require a minimum expenditure of $60,000.

(5) $19,700 for changing from direct to alternating electric current. In addition to the labor charge included under the appropriation "Compensation, Mechanical Shops and Power Plant," $13,700 will be required for supplies and materials for the work of changing the electric current characteristics in the East and West Wings. An item of $9,780 to cover labor on this job is included under the appropriation "Compensation, Mechanical Shops and Power Plant." $6,000 additional will be required to change electrically-operated equipment and apparatus of the Forest Service from direct to alternating, to conform to the current to be supplied in the new extensible building, in which the Forest Service will be located.

(6) $12,000 for repair and upkeep of buildings. The Government has acquired five important buildings in Square 263 and in addition, is taking over numerous vacated dwelling houses in that square for conversion into quarters for Department units. These old dwelling houses are the property of the United States and the expenses for their repair and upkeep, as well as for the five important buildings in that square, will now fall upon the Department. It is also necessary to provide for meeting the requirements of several leases, such as the Forest Service (Atlantic Building) and the Bureau of Public Roads (Willard Building), to place the buildings when relinquished in the condition they were in when first occupied by the United States. The cost of supplies and materials for these purposes will approximate $11,000, in addition to the labor charge of $12,720 included under the appropriation "Compensation, Mechanical Shops and Power Plant." An increase of $1,000 is included in this item for alterations to the windows in the building at Linworth Place and C Street, Southwest, so as to provide proper ventilation.

Activities under appropriation for Miscellaneous Expenses.

This appropriation, as shown by its terms, provides for a great variety of miscellaneous objects necessary in the conduct of the work of the Department, the largest item being approximately $51,000 a year for coal. It provides also for stationery, furniture and office equipment, lumber, hardware, paint, laundry, toilet and cleaning materials, electricity, telegraphing, telephoning, ice, postage, travel expenses, repairs and improvements to buildings and heating apparatus, freight, express and drayage charges, and miscellaneous supplies and expenses not otherwise provided for and necessary for the practical and efficient work of the Department.

(d) RETURN TO SECRETARY OF AGRICULTURE OF JURISDICTION OF PROPERTY AT MT. WEATHER, VA.

This item restored the property at Mount Weather, Virginia, to the jurisdiction of the Department of Agriculture. The transfer to this Department having been accomplished, the paragraph may be omitted in 1932.

(e) RENT OF BUILDINGS

Explanation of changes in language:

(1) The omission of the provision making available for the fiscal year 1931 the unexpended balance of the 1930 appropriation is recommended. This provision is applicable only to the fiscal year 1931.

(2) To safeguard the Department in the event of failure of pending purchase negotiations of the Treasury Department, and to provide for the continued occupancy of leased quarters if the new extensible building is not completed at the scheduled time, the insertion of the following language is recommended:

"in addition to which the Secretary of Agriculture, if found necessary, may enter into leases not to exceed $35,000"

Appropriation, 1931	$100,000
Unexpended balance, 1930, made available for 1931 by reappropriation in annual act, 1931	33,000
Total, 1931	133,000
Budget, 1932	70,000
Decrease	63,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Decrease
Rent of Buildings	$170,440	$133,000	$ 70,000	$ 63,000

The contemplated decrease of $63,000 in this item is in anticipation of the completion and occupation of the Department's new extensible building during the winter of 1931, into which will be moved several large units of the Department now housed in rented quarters, together with the possible acquisition by the United States of an additional building now rented by the Department.

Activities under appropriation for Rent of Buildings.

This appropriation provides for the rental of office, laboratory, and storage space for the several bureaus, offices, and units of the Department in the District of Columbia, for which no quarters are available in Government-owned structures. The following statement indicates the buildings under lease by the Department as of November 1, 1929, the same date in 1930, and the estimated rentals for the fiscal year 1932:

(Note: For Summary of rentals, see next page.)

Building	Bureau Occupying Space	F. Y. 1931 Annual Rental as of Nov. 1, 1929	F. Y. 1931 Annual Rental as of Nov. 1, 1930	F.Y. 1932 Estimated Rentals
1358 B St. S.W.	Agr'l Economics, Biological Survey, Department Library.	$55,000	(a)	(a)
928-930 F St. N.W.	Forest Service	35,000	$35,000	$17,500(b)
Earle Building	Home Economics	-----	31,500	15,750(b)
220 14th St. S.W.	Plant Industry, Extension Service.	24,000	(a)	(a)
216 13th St. S.W.	Chemistry & Soils, Food & Drug Adm.	16,000	20,000(c)	-----
Ohio Building	Fixed Nitrogen Research Laboratory.	16,000	16,000	16,000
513-515 14th St. N.W. .	Public Roads	14,000	15,000	7,500(b)
1363 C St. S.W.	Motion Picture Lab.	9,000	(a)	(a)
221 Linworth Pl. S.W. .	Agr'l Economics, Plant Industry, Central Stores.	5,400	(a)	(a)
Earle Building	Agr'l Economics	-----	4,865(d)	-----
220 Linworth Pl. S.W. .	Duplicating and Photographic Sec.	4,800	(a)	(a)
220 13th St. S.W.	Food & Drug Adm.	4,000	4,000	4,000
215 13th St. S.W.	Office of Information	4,000	(a)	(a)
200-202 14th St. S.W. .	Agr'l Economics	3,750	(a)	(a)
Water and H Sts. S.W. .	Agr'l Economics	-----	1,680	1,680
1316 B St. S.W.	Packers & Stockyards Adm., Grain Futures Administration.	3,000	(a)	(a)
1304-06 B St. S.W.	Plant Industry	3,000	(a)	(a)
1350 B St. S. W.	Animal Industry	1,580	(a)	(a)
215 12th St. S.W.(rear)	Chemistry & Soils, Food & Drug Adm., Biological Survey.	1,080	1,080	1,080
2513 M St. N.W.	Weather Bureau	1,000	1,000	1,000
1004 Eye St. N.W.	Forest Service (film storage)	1,000	1,000	1,000
212-214 13th St. S.W. .	Food & Drug Adm.,	960	960	960
210 11th St. S.W.	Entomology	900	900	900
920 F St.N.W.(basement)	Forest Service	600	600	300(b)
217 12th St. S.W.(rear)	Chemistry & Soils, Food & Drug Adm.	360	360	360
Emergency rentals	.....	---	3,920	1,970
Total	.....	204,430	137,865(e)	70,000

(a) Acquired by Government since November 1, 1929.
(b) Rental for half year.
(c) Negotiations pending for purchase of this building by Government.
(d) Rental paid from special fund for enforcement of perishable commodities act, Bureau of Agricultural Economics.
(e) Total includes $4,865 paid from special fund for enforcement of perishable commodities act, Bureau of Agricultural Economics.

OFFICE OF INFORMATION

(a) SALARIES AND GENERAL EXPENSES

Appropriation, 1931	$410,000
Brookhart Act Adjustments	3,921
Total, 1931	413,921
Budget, 1932	424,921
Increase	$ 11,000

There is an apparent increase of $11,000, but due to the fact that the 1932 Budget contemplates transfer of two employees assigned from this office to the Central Stores Section of the Department, who are now receiving $3,120, to the appropriation for "Salaries, Office of the Secretary," there is an actual increase of $14,120.

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
General	$39,402	$49,889	$57,849	$7,560	$400
Two employees, Central Stores*	3,060	3,120	------	-3,120	---
Publications-					
Management	14,425	14,910	14,910	-----	---
Editorial Section	18,652	19,017	21,817	2,600	200
Indexing Section	10,609	10,766	10,766	-----	---
Illustrations Section	24,344	24,334	24,634	-----	300
Photographic Section	31,979	31,054	31,654	-----	600
Printing Section	11,015	11,124	11,284	-----	160
Mailing Lists Section	12,851	13,039	13,139	-----	100
Congressional Distribution Section	29,025	28,955	29,395	-----	440
Miscellaneous Distribution Section	38,136	38,173	38,653	-----	480
Addressing, Duplicating and Mailing Section	98,170	101,174	101,474	-----	300
Press Service	43,100	44,036	44,596	------	560
Radio Service	25,232	24,330	24,750	-----	420
Total	$400,000	$413,921	$424,921	$+7,040	$+3,960

*Transferred to Office of Secretary, Budget 1932.

The increase of $11,000 (apparent) $14,120 (actual) is submitted for the following purposes:

$3,960 for under-average salary grade adjustments

$10,160 increase in working funds, as follows:

(1) $7,560 for five additional clerical employees:

1 CAF-4 at $1,800	$1,800
2 CAF-3 at $1,620	3,240
2 CAF-2 at $1,260	2,520
	$7,560

These five clerk-stenographers are necessary to organize a central file and emergency bulletin-distribution force.. These clerks will handle 130,000 incoming letters and 6,000 outgoing letters monthly. The same employees will serve as emergency help to speed up bulletin distribution; four will serve as a stenographic pool, and one as secretary to the two Special Agricultural Writers authorized by the 1931 appropriation.

(2) $2,600 for an assistant editor. The present staff of six editors handles 1,700 scientific and popular manuscripts annually. The work has increased 25 per cent since the staff was organized on its present basis. The additional editor requested is needed to assist in overcoming the manuscript congestion in the Department.

Activities Under Appropriation

The Office of Information disseminates agricultural educational data, made available by the research program of the Department. This appropriation provides for the salaries of employees and for general expenses of operating the three general divisions of the Office of Information - Publications, Press Service and Radio Service.

This Office handles all major problems affecting the informational activities of the Department, including the editorial, illustrating, publication, and distribution phases, and supervises the informational activities of the nineteen bureaus and offices of the Department in matters of publication precedent or policy. Cooperation with 48 colleges and 53 experiment stations is carried on to maintain an effective national policy for agricultural information. Control of contacts with 300 radio stations daily and with the press in general is centralized in this Office.

The more important work handled may be summarized as follows:

Publications

(1) The Division of Publications edits and prepares annually for the Public Printer approximately 1,700 Department manuscripts. The manuscripts completed and sent to the printer during 1930 were: Annual Reports, 18; Circulars, 58; Climatological Data, 23; Department Bulletins, 35; Department Circulars, 14; Experiment Station Bulletins and Reports, 10; Farmers' Bulletins (new), 22, revised, 528; Lists of Farmers' Bulletins, 8; Forest Service Map Folders, 42; Indexes, 14; Inventories of Plants Imported, 5; Journal of Agricultural Research Separates, 124; Leaflets, 17 new, 51 revisions; Lists of New Publications, 11; Miscellaneous Circulars, 8;

Miscellaneous Publications, 31; Periodicals, 227; Posters, 13; Regulatory Announcements, 180; Soil Surveys, 54; Statistical Bulletins, 4; Technical Bulletins, 77; Unnumbered Publications and Reports, 21; Yearbook of Agriculture, 1; Yearbook Separates, 27; total, 1,623. The division distributes through Congressional channels and direct to farmers, scientists, libraries, and others an annual average of 30,000,000 publications. Over 2,250,000 letters requesting information are handled. Considerable mimeographed and multigraphed work is produced and distributed. Necessary photographs and illustrations are prepared and specialized mailing lists, made up of 650,000 stencils, are maintained.

Press Service

(2) The Press Service issues annually 1,200 releases direct to newspapers, press associations, and correspondents; these disseminate useful information about the Department's work. About 3,500 newspapers are reached weekly through various syndicates; these are mainly informative features with illustrations. The Press Service aids Department workers in placing approximately 1,400 articles annually in outside publications; these are interpretative articles on every phase of agriculture. Special interpretative articles for all farm journals and other periodicals are prepared. This division also gives data to special writers. The Yearbook and the Annual Report are prepared.

Radio Service

(3) Two hundred and thirteen broadcasting stations cooperate with the Radio Service. The Department does not pay for radio time, although commercially it is worth about 1½ million dollars annually. The Department broadcasts five days each week over a network of 39 stations. Two weekly network programs over 17 stations are maintained and a new network program for the Pacific Coast is now being organized. The Radio Service also prepares manuscript programs for 197 stations, located in 45 states, the District of Columbia, and Hawaii. These programs comprise three five-days-a-week features, two bi-weekly features, three weekly features, and one monthly program. In addition to these 1,000 programs annually, many of which are regionalized, special broadcasts are from time to time arranged. Counting regionalized programs as separate manuscripts, 3,000 programs are prepared annually.

(b) PRINTING AND BINDING

Appropriation, 1931	$942,000
Budget, 1932	$1,000,000
Increase	58,000

Reasons for Increase

Research, service, and regulatory work are conducted to benefit agricultural and other groups. This purpose is nullified if the Department does not let the public have the results of the work promptly. The present appropriation is not adequate to disseminate all of the valuable information available in the Department.

The increase of $58,000 is urgently required to make the fund sufficient to carry on the regular printing and binding work of the Department of Agriculture, and to permit a continuation of the gradual reduction of the large accumulation of unpublished manuscripts in the possession of the nineteen bureaus and offices of the Department.

The appropriation of 1930 was $842,000, which was approximately $110,000 short of the current needs. Subsequent to May 12, 1930, manuscripts, job work, and reprints were held, including Farmers' Bulletin reprints, although the supply of more than 100 titles was exhausted. The demand for Farmers' Bulletins alone increased so extensively that thousands of Congressional requests could not be met and the Department filled only 60 per cent of the requests received direct from farmers. Department activities in 1931 are greatly increased over 1930, and consequently the $942,000 appropriation will not be sufficient to meet the demands during the year.

Funds for printing and binding should bear a definite ratio to department activities as a whole -- not including road funds which do not require printing work in the same proportion. In 1923, when printing expenditures met the current needs, the ratio was 1.52 per cent. In 1925, when the printing fund was decreased, Department activities increased, and the congestion of manuscripts began to be serious, the ratio dropped to 1.22. By 1929 the ratio had dropped to 1.07 and the congestion had become approximately $830,000. For ten years -- 1921 to 1930 inclusive -- the ratio of printing and binding expenditures, plus the congestion, to the total regular funds for Department work was 1.33. The estimate of $1,000,000 for 1932 is extremely conservative on the basis of this calculation of averages, as well as on the basis of the actual needs of all the bureaus and offices of the Department. Since 1924, when the publication program was up-to-date, funds for regular work in the Department have increased by approximately $30,000,000 or, roughly, a 55 per cent increase. Printing funds during the same period have been increased $204,000 or, roughly, 28 per cent.

A new and large demand on the Department for special publications is coming from the Federal Farm Board. Requests from the Board and other new emergency demands necessitated an expenditure of $75,000 for rush publications.

The present situation prevents the prompt release to the public of much valuable information for which large expenditures have been made in research and other projects. The Department has reduced to a minimum the unit costs of printing by using cheap grades of paper, small type, and economical printing units in publications; consequently no further relief can be found in that direction.

Project Statement

Publication	Expended 1930	Estimated 1931	Estimated 1932	Increase
Agricultural Situation	$3,200	$3,500	$3,500	----
Annual Reports	10,415	10,500	10,500	----
Atlas of American Agriculture	-----	8,000	8,000	----
Binding	25,000	30,000	32,000	2,000
Circulars	15,800	19,000	22,000	3,000
Climatological Data	1,500	2,000	2,000	----
Section Summary	-----	-----	7,500	7,500
Clip Sheet	3,400	4,000	4,000	----
Congressional Documents	2,500	2,500	2,500	----
Crops and Markets	61,000	62,000	64,000	2,000
Emergency Field Printing	3,500	4,000	4,000	----
Experiment Station Bulletins and Reports	4,000	4,000	4,000	----
Experiment Station Record	18,200	19,000	19,000	----
Extension Service Review	1,425	6,000	6,000	----
Farmers' Bulletins -- New	18,000	25,000	29,000	4,000
Farmers' Bulletins -- Reprints	177,000	177,000	184,000	7,000
Farmers' Bulletin Lists	13,000	13,800	13,800	----
Forest Folders	10,000	12,000	14,000	2,000
Forest Worker	1,700	1,700	1,700	----
Indexes	1,200	10,000	12,400	2,400
Inventories	2,000	3,000	3,000	----
Job Work	178,452	186,000	193,000	7,000
Journal of Agricultural Research	5,200	6,200	6,200	----
J. A. R. Separates	16,000	16,000	16,500	500
Leaflets -- New	3,400	6,400	7,000	600
Leaflets -- Reprints	6,000	8,500	9,300	800
Letterheads	8,000	8,950	9,000	50
Lists of New Publications	1,200	1,200	1,400	200
Miscellaneous Publications	22,150	24,450	24,950	500
North American Fauna	1,813	2,000	2,000	---
Official Record	11,000	11,000	11,000	---
Posters	7,400	7,500	7,500	---
Reprints and revisions of former series	5,875	5,000	5,000	---
Service & Regulatory Announcements	11,000	11,000	12,000	1,000
Soil Surveys	75,000	100,000	108,000	8,000
Statistical Bulletins	10,970	10,000	12,000	2,000
Technical Bulletins	45,350	52,840	57,000	4,160
Unnumbered Publications	19,700	25,110	28,400	3,290
Weather Review	9,300	9,500	9,500	---
Weather Review Separates	600	600	600	---
Yearbook	28,000	30,000	30,000	---
Yearbook Separates	2,750	2,750	2,750	---
Total	$842,000	$942,000	$1,000,000	$58,000

———0———

LIBRARY

SALARIES AND EXPENSES, LIBRARY

Explanation of change in language: The insertion of the words "purchase and exchange of" is recommended in order to permit the Library to exchange, with other libraries and bookdealers, surplus books and periodicals for other books and periodicals, to be supplied as needed. The material to be disposed of consists for the most part of state, society and foreign government publications and periodicals, received by gift by various offices of the Department.

Appropriation, 1931	$104,000
Brookhart Act Adjustments	560
Total, 1931	104,560
Budget, 1932	111,640
Increase	7,080

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Personnel	$ 69,253	$ 71,860	$ 75,140	$2,260	$1020
Books, periodicals and other serials	28,382	29,400	30,400	1,000	
General expenses, including equipment	4,360	3,300	6,100	2,800	
Totals	$101,995	$104,560	$111,640	$6,060	$1020

The increase of $7,080 is submitted for the following purpose:

$1020 Under-average salary grade adjustments.

$6060 increase in working funds, as follows:

(1) $2260 for additional personal services:

(a) $1260 for a minor library assistant. This additional assistant is needed for the Readers' Division. On account of the growth of the Library and because of its enlarged quarters in the new building now under construction, an additional assistant is needed whose duties will be to get books from the shelves and to help in the increased routine work of the division.

(b) $460 toward salary of a library aide at $1020. This additional assistant is needed in the Catalogue Division for the work of labeling and marking the books and for doing the simple filing. With the present force it is impossible to keep the pasting, marking, and filing up to date. As a result it is necessary for current operation to have higher paid assistants help in this work. This is uneconomical and results in congestion in more important work.

(c) $540 for a part time charwoman. This additional charwoman is needed on account of the enlarged space to be occupied by the Library in the new extensible building.

(2) $3800 for equipment:

(a) $1000 for books, periodicals and serials. The present funds are not sufficient to purchase the books and periodicals which are needed by the various offices of the Department in their work. The funds for the fiscal year 1930 were exhausted the first of May.

(b) $2800 for equipment. When the Library is moved into its new quarters it will be necessary to purchase much additional equipment such as furniture, floor covering, catalogue cases, filing cabinets, map cases, book trucks, lockers, etc.

Activities under Appropriation for Salaries and Expenses, Library:

The Department Library is one of the basic units in the research organization of the Department and the state agricultural agencies. With its branch libraries in the various bureaus, containing approximately 218,000 volumes on agriculture and the related sciences, technology, and economics, it is the largest special collection of this kind in the country. It makes this literature readily available through its catalogues and special indexes, numbering more than a million cards, and through special bibliographies. It circulates books and periodicals to Department workers as needed in their work, especially in research, and assists them in gathering references on scientific and economic subjects and problems which are being investigated or are to be investigated. It supplies reference material and bibliographical information needed in answering the various inquiries addressed to the Department and assists the State agricultural colleges and experiment stations and other scientific institutions through the loan of its books. In general, it acts as the national agricultural library and as the clearing house of bibliographical information relating to the literature of agriculture in all its phases.

--- 0 ---

OFFICE OF EXPERIMENT STATIONS

(a) PAYMENTS TO STATES, HAWAII, AND ALASKA FOR AGRICULTURAL EXPERIMENT STATIONS

Appropriation, 1931	$4,340,000
Budget, 1932	4,357,000
Increase	17,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Hatch Act	$ 720,000	$ 720,000	$ 720,000	-------
Adams Act	720,000	720,000	720,000	-------
Purnell Act	2,880,000	2,880,000	2,880,000	-------
Hawaii Station Act	15,000	20,000	22,000	2,000(1)
Alaska Station Act	-----	------	15,000	15,000(2)
Total	4,335,000	4,340,000	4,357,000	17,000

The increase of $17,000 is submitted for the following reasons:

(1) $2,000 to meet the authorization of $22,000 for 1932 provided in the Hawaii Station Act approved May 16, 1928.

(2) $15,000 to carry into effect the Alaska Station Act approved February 23, 1929, full text of which is set forth under "Activities under Appropriation." The estimate for Federal Alaska Stations is being reduced by $24,700.

Activities under Appropriation for Payments to States, Hawaii and Alaska for Experiment Stations

The Hatch Act approved March 2, 1887, appropriates $15,000 per annum to each State for agricultural experiment stations to "aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

The Adams Act approved March 16, 1906, appropriates $15,000 per annum to each State for the more complete endowment and maintenance of the State agricultural experiment stations "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States."

The Purnell Act approved February 24, 1925, authorized an appropriation for each State of $20,000 for the fiscal year 1926, an increase of $10,000 over the preceding year for each fiscal year 1927 to 1929, inclusive and $60,000 per annum thereafter for the more complete endowment of agricultural experiment stations and for other purposes to be "applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry, and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life, and for printing and disseminating the results of said researches."

The Hawaii Station Act approved May 16, 1928, provides that beginning with the fiscal year 1930 the Territory of Hawaii shall be entitled to share in the acts noted above and authorizes appropriations for this purpose as follows: 1930, $15,000; 1931, $20,000; 1932 to 1936, inclusive, $2,000 increase each year over the preceding year; 1937, $50,000; 1938 to 1941, inclusive, $10,000 increase each year over the preceding year; and thereafter $90,000 per year.

The Alaska Station Act approved February 23, 1929, provides "That the following Acts, to wit, an Act entitled 'An Act to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an Act approved July 2, 1862, and of the Acts supplementary thereto,' approved March 2, 1887, as amended and supplemented, and known as the Hatch Act; and an Act entitled 'An Act to provide for cooperative extension work between the agricultural colleges in the United States receiving the benefits of an Act of Congress approved July 2, 1862, and of Acts supplementary thereto, and the United States Department of Agriculture,' extended to the Territory of Alaska: Provided, That no appropriations shall be made under this Act until annually estimated as to funds and amounts by the Secretary of Agriculture; the estimates to be based upon his determination of the ability of the Territory of Alaska to make effective use of the funds.

With the approval of the Secretary of Agriculture, agricultural experiment substations, to the number of not more than two, may be maintained under the provisions of the Hatch Act."

(b) SUPERVISION OF AND RELATIONS WITH AGRICULTURAL EXPERIMENT STATIONS

Appropriation, 1931	$162,500
Brookhart Act adjustments	1,780
Total	164,280
Budget, 1932	169,380
Increase	5,100

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Supervision of and relations with State agricultural experiment stations..	$147,972	$164,280	$169,380	$5,100

The increase of $5,100 is needed to help meet the increasing demands on the Office for aid in correlating the research work being done in agriculture by the Department and the State experiment stations; in keeping account of the cooperation between the bureaus of the Department and the State stations, and in planning and organizing the research work of the stations, especially in the newer lines of work, have taken so much time of the various specialists of the Office that they have been able to give less and less time to the administrative features of the work of the Office, which also have been increased to a marked extent by the increased appropriations to the States, matters pertaining to the Budget, etc. The need of the Office for assistance for its purely administrative work is pressing and is seriously handicapping the work in other lines, such as the Experiment Station Record, administration and inspection of the insular stations, etc. The increased work at the State experiment stations has also increased the time required to make the annual inspections and has thereby increased both the time that persons engaged on such work must be away from their other duties and the cost of travel.

The increase of $5,100 will be used to provide a scientific employee to assist in the general administration of the Office and in the work of the Experiment Station Record, a clerk-stenographer, and a small amount for additional travel.

Activities under Appropriation for Supervision of and Relations with Agricultural Experiment Stations

The Office of Experiment Stations is charged with the administration of the Federal funds appropriated for agricultural experiment stations in the States and Territories and for the insular experiment stations in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands. This will involve funds for 1932 amounting to $4,357,000 for the States, Hawaii, and Alaska for agricultural experiment stations, and $228,180 for the Federal insular experiment stations. The supervision of these funds is close and the advisory relations are very extensive. The funds are expended on the basis of definite projects submitted by the stations in advance to the Office of Experiment Stations for review, acceptance, or modification. About 1,630 projects were reviewed and approved during 1930. The work and expenditures of each station are inspected annually, necessitating that from three to five days be spent at each of the fifty stations by a representative of the Office who is qualified to review all expenditures and lines of research. As a result of the annual inspection many restatements and modifications of existing projects are made. The budgets of the Federal funds of all the stations are submitted annually to the Office for approval and this offers opportunity for

checking the justification of continuing individual lines of work. Formerly the supervision of the funds was comparatively simple, but with the projects becoming more technical and the inclusion of new fields of investigation, a technical staff of specialists competent to criticize the work and offer suggestions has been necessary. The stations recognize the assistance given them by the Office and numerous requests have been received for advice on projects that are financed wholly from funds other than Federal. The agricultural experiment stations in the United States expended more than $16,400,000 in the last fiscal year and the Office is looked to for advisory assistance in the research work that is in progress.

The Office administers the insular experiment stations in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands with an appointed personnel of 38 persons. These stations have under investigations 188 projects, all of which are reviewed and approved in the Office. Annual progress is reported on the projects and the entire program is reviewed every year. The results of the investigations are published in reports and bulletins which are edited and prepared for publication in the Office.

The Office is assisting in the coordination of the work of the several State stations and that of the Department and more than 1,100 agreements for cooperative projects between the bureaus of the Department and the stations are recorded as in force.

For the purpose of aiding research workers in the stations and the Department, the Office prepares for publications the Experiment Station Record. This is a technical journal covering the field of research in the sciences pertaining to agriculture. Approximately 7,000 abstracts prepared in the Office by specialists in various lines pertaining to agriculture are published annually in two volumes, each of nine numbers and an index. The Experiment Station Record has completed the 62nd volume and it furnishes an epitome of agricultural research during the past forty years.

The Office also, as a part of the cooperation between the Department and Biological Abstracts in the preparation of technical abstracts for that journal, provides about $5,300 for the employment of technical and clerical personnel and supplies for this work.

(c) INSULAR AGRICULTURAL EXPERIMENT STATIONS

Explanation of change in language: The omission of the proviso "Provided That the Secretary of Agriculture is authorized to discontinue either or both of the experiment stations at Sitka and Kodiak, Alaska, whenever in his judgment such action is warranted" is recommended for the reason that its continuation is not believed to be necessary. Under the 1932 estimates, the Department contemplates closing the Sitka and Kodiak stations, as provided for in the 1931 Appropriation Act, and also the transfer of the Fairbanks station to the Territory. This will leave the Matanuska station the only Federal agricultural experiment station in the Territory.

The omission of the proviso "Provided further That of the sum herein appropriated for the experiment stations in Alaska, $8,000 shall be available only for the erection of buildings" is recommended for the reasons that the building program contemplated at the Matanuska station has been practically completed and with the reduced appropriation for the Alaska stations the restricting of the use of funds to the erection of buildings may seriously hamper research work.

Appropriation, 1931	$249,000
Brookhart Act adjustments	1,200
Total, 1931	250,200
Budget, 1932	228,180
Decrease	22,020

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase or Decrease
Alaska Station	$85,000	$85,300	$60,600	- $24,700 (1)
Hawaii Station	45,000	45,200	43,520	- 1,680 (2)
Porto Rico Station	59,000	59,200	63,560	+ 4,360 (3)
Guam Station	29,000	30,200	30,200	------
Virgin Islands Station	29,000	30,300	30,300	----
Total	247,000	250,200	228,180	- 22,020

The total decrease to the five insular stations is composed of decreases in the appropriation to the Alaska and Hawaii stations and an increase in the appropriation to the Porto Rico station, as follows:

(1) $24,700 decrease for the Alaska Experiment Stations:

$15,000 of the decrease of $24,700 is due to the intended transfer of the Fairbanks station to the Agricultural College and School of Mines of Alaska upon appropriation being made to carry into effect the Alaska Station Act approved February 23, 1929. The further reduction of $9,700 will involve the abandonment of the Sitka and Kodiak stations.

The plan of the Department will be to centralize its work at the Matanuska station. Investigations now in progress at that station will be continued and will be increased so far as the $4,150 increase to that station will permit by the transfer of the cereal and forage plant work and the cross breeding of yak and Galloway cattle investigations heretofore carried on at Fairbanks station and by the transfer of the experimental work with small fruits and vegetables and ornamentals heretofore carried on at the Sitka station.

The estimated expenditures at each Alaska station in 1931 and 1932 are as follows:

Estimated Expenditures at Alaska Stations, 1931 and 1932

Station	Estimated Expenditures 1931	Estimated Expenditures 1932	Change 1931 to 1932
Sitka station.....	$ 7,850	---	- $ 7,850
Matanuska station.....	56,450	$60,600	+ 4,150
Fairbanks station.....	16,000	---	- 16,000
Kodiak station.....	5,000	---	- 5,000
Total.....	85,300	60,600	- 24,700

(2) $1,680 decrease for the Hawaii Experiment Station:

The decrease will involve a reduction of the expenses of the station.

(3) $4,360 increase for the Porto Rico Experiment Station:

There is a great need in Porto Rico of studies of soils, fertilizers, the utilization of crop surpluses and wastes, and other lines of work requiring chemical research. The station has been without a research chemist for a number of years and consequently it has been possible to do but little along these lines. The addition of a research chemist to the staff, as contemplated by this increase, will not only enable studies to be made along these lines, but will also enable the investigations of other specialists to be supplemented by studies of the chemical phases of the problems.

Activities under the Appropriation for Insular Stations

General

The agricultural experiment stations in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands were established to determine the agricultural possibilities of the different insular parts of the United States, to aid in the improvement and diversification of agriculture in the possessions, and to develop types of agriculture adapted to each.

Alaska Stations: Experimental work at Sitka has consisted of investigations of small fruits, vegetables, and ornamentals for the home gardens and commercial grower. At the Faribanks and Matanuska stations investigations in crop adaptability and improvement, plant and animal breeding, and the feeding and care of livestock have been in progress. At Kodiak livestock work has been carried on to determine the winter management necessary under range conditions.

The cereal breeding and selection work have resulted in varieties of wheat, oats, and barley that are adapted to interior Alaska. The work with forage plants has resulted in the introduction of many superior strains. Investigations have shown that grasses and forage plants cut in July or early August gave hays of greater nutritive value and the weather at that time is ususally more favorable for haying than later in the year. The common belief that native grasses retained their nutritive value when allowed to ripen in the late fall was shown to be erroneous.

The adaptability of Galloway cattle to Alaska conditions has been established. In order to produce a better milk type animal, crosses have been made between Galloway and Holstein cattle, and one of the crossbred cows gave 12,010 pounds of milk in her fourth lactation period. Several second generation crossbreds gave about 8,000 pounds of milk in their first lactation periods. The work in crossing yak and Galloway cattle has shown the possibility of producing a hardy beef animal for the interior of Alaska.

There have been developed varieties of strawberries through hybridizing the native wild species with commercial varieties that are hardy, productive, and extensively grown throughout most of the settled parts of the Territory. Superior strains and varieties of other small fruits have been introduced and extensively distributed. Some very promising seedling varieties of potatoes have been developed that are being given wide tests to determine their value in comparison with commercial varieties that were developed under dissimilar conditions. The local growing of bulbs for the propagation of hyacinths, narcissus, tulips, some lilies, etc., has been found practicable.

Hawaii Station: This station was established to aid in the development of agricultural industries other than sugar production, that industry being already served by the experiment station of the Sugar Planters' Association. Considerable experimental work was done in the early days of the station with pineapples, but with the establishment of a station by the pineapple growers the station withdrew very largely from this field and its work is now chiefly along lines designed to assist the so-called small farmer. Cooperative work with the University of Hawaii has been begun in a limited way with coffee in an attempt to aid the growers of that crop and extend it to other areas. An experimental and demonstration farm is maintained on the Island of Maui in cooperation with the Territory of Hawaii. This station is located in a homestead area at an elevation of about 4,000 feet and as a result of its work a successful commercial planting of pineapple has been made at an elevation of nearly 1,000 feet above what was formerly considered the limit for this crop. This will give homesteaders in the region a good cash crop.

Discovery of the cause and control of pineapple yellows, the awakening of interest in the growing of edible canna for starch production and stock feed, extensive soil studies which form the basis for the classification of the soils of the Territory, improvements in jelly- and preserve-making, making possible the utilization of surplus fruits, developing more rapid and successful methods of propagating the more important tropical fruits, nuts, and ornamentals, the introduction and dissemination of important varieties of fruits, nuts, trees, etc., and the introduction of forage and pasture plants which have greatly increased the carrying capacity of the range have been some of the results of the station's work.

Porto Rico Station: The Porto Rico station, with headquarters at Mayaguez, was established for the purpose of aiding in the improvement and diversification of the agriculture of the island. The results of its investigations have been of far reaching importance. An active interest has been aroused in livestock and crop improvement, the control of some animal parasites, the introduction of better forage

crops, the extended use of cover crops, etc. The station has been quite successful in its plant breeding work and better varieties of corn and sugar cane varieties resistant to mosaic and high in sugar yield have been produced. Some of these varieties have been placed with planters for testing on a large scale. Cooperative investigations with citrus fruits and pineapples are in progress in which cooperative organizations and individual growers are sharing. Improved methods of marketing these crops have been worked out and they have been adopted by the more progressive planters. The introduction and adaptation of tropical horticultural crops from other countries have greatly increased the interest in these products.

Guam Station: The Guam station, which was established at the urgent request of the Navy Department, designed to bring about an improvement of the agriculture of the island. The people of the island are largely agricultural, but their industry was in a very primitive state of development. The experimental work of the station has been along livestock improvement, crop production, and pest control, and distinct progress has been made. Through the introduction of improved sires and continued selection of breeding stock, distinct progress has been shown in the horses, cattle, swine, and poultry of the island. Through the introduction and establishment of better forage plants and the discovery that it was possible to substitute coconut meal, a byproduct of the coconut industry, for one-third to one-half of the grain ration usually fed, the cost of producing animals was greatly reduced. The introduction of various tropical fruits, vegetables, and root crops from other countries has considerably improved the dietary of the people. The entomologist, through his activities, has brought about a biological balance between the coconut scale and its parasites so that the danger of the destruction of the coconut trees appears to have been averted. Similar studies are in progress for the control of other insect pests.

Agricultural extension work is carried on on a limited scale. Efforts are being made to interest the young folks, especially the school children, in various agricultural activities, as it is believed this offers the best means of approach for the ultimate improvement of the agriculture of the island. To some extent improvements are evidenced by the adoption of improved crops and the use of modern implements for hand work in the cultivation of crops.

Virgin Islands Station: The Virgin Islands station, which was established under the Danish regime, was acquired with the purchase of the islands. This station is endeavoring to improve the agricultural condition of the islands and to relieve the situation brought about by changed economic conditions. The principal activities of the station are concerned with field and horticultural crops, animal husbandry, and veterinary studies. Plant breeding with corn, sugar cane, and sweet potatoes has already given promising results. One variety of sugar cane produced at the station is widely distributed throughout the West Indies, where it has proved to be exceptionally good for growing without irrigation. A variety of sweet potato of excellent quality has been produced that yields about 50 per cent more than the standard local variety. The successful growing of vegetables for shipment to New York during the winter season has been demonstrated,

but there are a number of marketing problems yet to be solved before the undertaking can be made a success. In connection with the vegetable work, considerable interest has been shown by the people and production for home consumption has been greatly increased. The livestock industry is second in importance in the industries of the islands and the station is aiding this in every way possible. The veterinarian inspects and certifies every lot of cattle shipped to Porto Rico, the leading export market.

Extension and demonstration work in agriculture are carried on on St. Thomas and St. John in an effort to induce the people of those islands to cultivate vegetables for home consumption and selling their surplus. An agent has his headquarters in St. Thomas and he reports considerable progress in his work. Many of the people of St. Thomas formerly gained their livelihood about the docks and warehouses, but changed conditions deprived them of work and many were in straightened circumstances. These people had to be taught the most elementary operations of planting and tending crops.

----------0----------

EXTENSION SERVICE

Payments to States, Hawaii, and Alaska for agricultural extension work

General Statement

The payments direct to the States, Hawaii, and Alaska for cooperative agricultural extension work total $8,672,936, and are included in five appropriation items, as follows:

Permanent Annual Appropriation (Smith-Lever Act)
Supplemental Smith-Lever (Annual Appropriation Act)
Capper-Ketcham (Capper-Ketcham Act, May 22, 1928)
Alaska (Act of February 23, 1929)
Additional Cooperative Extension Work (Deficiency Act of July 3, 1930).

In addition to this sum, there is available to the States and Hawaii from appropriations direct to the Department of Agriculture (Farmers' Cooperative Demonstrations and Clarke-McNary forestry funds) for the fiscal year 1931, a total of $1,041,755, making funds available for this work in the States and Territories for 1931 total $9,714,691. For 1932 a total allotment of $9,705,761 is proposed, the reduction being due to the transfer of $10,930 from the field to the Washington office, an increase of $2,000 for forestry field work, or a net decrease of $8,930. This transfer is explained under the heading "Farmers' Cooperative Demonstrations". The federal funds expended for cooperative agricultural extension work are supplemented by funds from within the States totaling $15,876,249, thus making available from federal, state and local sources for extension work a sum approximating $25,581,030.

With the exception of the $1,000,000 made available in the Deficiency Act of July 3, 1930, the major part of the money is distributed on the basis of rural population, figured on the proportion that the rural population of each State and Hawaii bears to the total rural population of the States and Hawaii. The funds made available under the Deficiency Act of July 3, 1930, are paid to each State and the Territory of Hawaii by the Secretary of Agriculture in accordance with the apparent need for additional cooperative agricultural extension work.

The use of the funds for extension work is indicated somewhat more clearly by tables appended hereto, as follows:

Table 1. Statement showing appropriation items and amounts available to the States in 1931 and proposed for 1932.
Table 2. Statement indicating direct payments to States, Hawaii and Alaska, proportion requiring offset by States, proportion not requiring offset and basis of distribution.
Table 3. Total funds used in extension work both federal and state, fiscal year 1931.
Table 4. Comparison of number of extension field agents employed June 30, 1929 with those employed June 30, 1930, and estimated number for 1931.

Table 1. Statement showing appropriation items and amounts available to the States in 1931 and proposed for 1932.

Act	1931	Estimated 1932
Permanent annual appropriation (Smith-Lever Act of May 8, 1914).....	$4,602,936	$4,602,936
Supplemental Smith-Lever (Annual Agricultural Appropriation Act).....	1,580,000	1,580,000
Capper-Ketcham (Act of May 22, 1928).....	1,480,000	1,480,000
Alaska (Act of February 23, 1929).....	10,000	10,000
Additional cooperative extension work (Deficiency Act of July 3, 1930).....	1,000,000	1,000,000
Total payments made directly to State.....	$8,672,936	$8,672,936
Amounts allotted to States but disbursed by Department of Agriculture		
Farmers' cooperative demonstration work:		
Cooperative extension work	$ 944,555	$ 933,625*
Reclamation demonstrations	33,800	33,800
Cooperative farm forestry (Clarke-McNary Act, Act of June 7, 1924).....	63,400	65,400
Total allotments to States by Department ...	$1,041,755	$1,032,825
Total of direct payments to States and allotments to States	$9,714,691	$9,705,761

*Decrease explained under paragraph with reference to Farmers' Cooperative Demonstrations item.

Table 2. Statement indicating direct payments to States, Hawaii and Alaska; proportion requiring offset by States, proportion not requiring offset and basis of distribution.

Fiscal Year 1931 and Budget 1932.

	Total App'n	Amount paid without offset	Amount requiring offset and basis of allotment	
			Amount	Basis of distribution
(1) Permanent Annual Appropriation (Smith-Lever Act).....	$4,602,936	490,000(a)	$4,112,936	Rural population.
(2) Supplemental Smith-Lever.....	1,580,000	- -	1,580,000	Rural population.
(3) Capper-Ketcham.....	1,480,000	980,000(b)	500,000	Rural population.
(4) Alaska	10,000	10,000(c)	- -	Direct appropriation.
(5) Additional Cooperative Extension Work..	1,000,000	- -	1,000,00	Determined by Secretary of Agriculture.
Total funds available...	8,672,936	1,480,000	7,192,936	- -

(a) $10,000 to each State and Hawaii.
(b) $20,000 to " " " " .
(c) Based on special Act.

Table 3. Total funds used in extension work both Federal and State, Fiscal year 1931.

State	Total	Total Federal Funds	Total Within the States
Alabama	$ 750,743.83	$ 312,629.70	$ 438,114.13
Arizona	164,919.30	82,171.32	82,747.98
Arkansas	590,026.52	264,653.26	325,373.26
California	843,562.13	201,847.03	641,715.10
Colorado	283,324.25	128,620.43	154,703.82
Connecticut	292,177.22	102,816.22	189,361.00
Delaware	64,123.76	46,575.11	17,548.65
Florida	428,196.98	148,987.99	279,208.99
Georgia	806,961.21	372,286.49	434,674.72
Idaho	245,935.32	104,755.50	141,179.82
Illinois	1,060,176.16	319,071.82	741,104.34
Indiana	645,522.82	241,150.99	404,371.83
Iowa	1,051,650.00	252,379.17	799,270.83
Kansas	757,360.83	204,487.80	552,873.03
Kentucky	615,609.74	303,775.81	311,833.93
Louisiana	491,024.32	227,206.32	263,818.00
Maine	202,284.72	109,217.36	93,067.36
Maryland	368,849.62	135,675.51	233,174.11
Massachusetts	466,967.00	87,556.26	379,410.74
Michigan	827,153.58	235,166.58	591,987.00
Minnesota	557,200.36	229,197.68	328,002.68
Mississippi	557,164.90	282,918.21	274,246.69
Missouri	616,265.62	291,267.56	324,998.06
Montana	354,326.09	127,868.76	226,457.33
Nebraska	410,721.20	174,710.60	236,010.60
Nevada	137,450.00	61,815.47	75,634.53
New Hampshire	209,967.54	75,897.54	134,070.00
New Jersey	430,005.94	138,750.94	291,255.00
New Mexico	206,328.02	95,480.83	110,847.19
New York	1,664,650.93	282,632.76	1,382,018.17
North Carolina	688,507.28	345,118.64	343,388.64
North Dakota	312,151.77	142,100.93	170,050.84
Ohio	944,283.54	312,160.86	632,122.68
Oklahoma	621,552.07	264,827.82	356,724.25
Oregon	415,002.43	143,969.64	271,032.79
Pennsylvania	877,825.54	415,322.77	462,502.77
Rhode Island	65,002.05	38,977.81	26,024.24
South Carolina	548,803.67	252,028.56	296,775.11
South Dakota	326,957.20	137,672.60	189,284.60
Tennessee	670,748.03	304,578.03	366,170.00
Texas	1,337,684.99	523,807.59	813,877.40
Utah	178,966.32	91,134.32	87,832.00
Vermont	191,561.36	89,402.18	102,159.18
Virginia	658,962,76	291,262.76	367,700.00
Washington	281,952,68	142,016.34	139,936.34
West Virginia	493,365.53	194,919.45	298,446.08
Wisconsin	573,229.38	226,439.69	346,789.69
Wyoming	198,008.00	77,112.26	120,895.74
Alaska	10,000.00	10,000.00	
Hawaii	81,855.46	58,377.73	23,477.73
Porto Rico	3,960.00	1,980.00	1,980.00
Grand Total	$ 25,581,029.97	$ 9,704,781.00	$ 15,876,248.97

Table 4. Comparison of number of extension field agents employed June 30, 1929, with those employed June 30, 1930, and estimated number for 1931.

This statement gives a comparison of the extension force for the fiscal years 1929, 1930, and estimated for 1931. For the fiscal year 1931, $1,000,000 was provided in the Deficiency Act of July 3, 1930, the effect of which on the number of agents employed can only be estimated as yet.

	June 30, 1929	June 30, 1930	Estimate of number of agents during 1931
State supervisors	484	488	494
Subject-matter specialists			
Full-time specialists	822	854	988
Part-time specialists	215	246	237
County workers			
Agricultural agents	2452	2580	2695
Home demonstration agents	1167	1225	1351
Boys' and girls' club agents	252	246	262
Negro extension agents	299	303	309
Total	5691	5942	6336

Explanation of the activities under the specific appropriation items and tabulation of amounts involved under each:

(a) COOPERATIVE AGRICULTURAL EXTENSION WORK
(Supplemental Smith-Lever)

Appropriation, 1931	$ 1,580,000
Budget, 1932	1,580,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
Supplemental Smith-Lever Funds	$1,580,000	$1,580,000	$1,580,000

Activities under this Appropriation

These funds supplement the permanent annual appropriation of $4,602,936 provided under the Smith-Lever Act (May 8, 1914, 38 Stat. 372-374 U. S. C. 114). Like the Smith-Lever funds, they are paid direct to the State colleges of agriculture as Federal aid for the promotion of extension work in agriculture and home economics. Programs of work and expenditures from Federal Smith-Lever funds are supervised by the Department of Agriculture. This appropriation is divided among the States and Hawaii in the proportion that the rural population of each bears to the total rural population of the States and Hawaii, and is available only when offset with funds from within the States. This item contains a provision that not more than $300,000 may be expended for purposes other than salaries of extension agents in counties. As $300,000 is approximately 19 per cent of the total appropriation, this means that approximately 81 per cent of the funds must be expended for salaries of county extension agents.

(b) COOPERATIVE AGRICULTURAL EXTENSION WORK
(Capper-Ketcham)

Appropriation, 1931 ..... $1,480,000
Budget, 1932 1,480,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
Capper-Ketcham Funds	$1,480,000	$1,480,000	$1,480,000

Activities under this Appropriation

This appropriation is specifically authorized by the provisions of the Act of May 22, 1928 (45 Stat. 711, 712) known as the Capper-Ketcham Act. This Act authorizes an appropriation of $980,000 to be divided at the rate of $20,000 to each State and to Hawaii, without requirement for State offset, and of an additional $500,000 to be divided among the States and Hawaii on the basis of rural population. It further provides that at least 80 per cent of the funds appropriated under this authorization shall be expended for salaries of county extension agents, and that the extension agents appointed under its provisions shall be men and women in fair and just proportions. The State allotments are paid directly to a designated officer in the State and are disbursed in accordance with budgets and plans of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to an annual inspection by representatives of the Department.

(c) EXTENSION OF SMITH-LEVER ACT TO ALASKA

Appropriation, 1931..... $10,000
Budget, 1932..... 10,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
Cooperative Extension work, Alaska.....	------	$10,000	$10,000

This appropriation is specifically authorized by the Act approved February 23, 1929, entitled, "An Act to extend the benefits of the Hatch Act and the Smith-Lever Act to the Territory of Alaska," (U. S. C. Supp. III, title 7, sec. 386c). This act authorized the extension of the Hatch Act for Federal aid to experiment stations, and the Smith-Lever Act for Federal aid for extension work, to the Territory of Alaska, under certain specified conditions. This item has to do only with carrying out the provision extending the Smith-Lever Act to Alaska.

Activities under this Appropriation

This appropriation provides funds for the employment of an agricultural agent and a home demonstration agent in Alaska on a part time basis with necessary travel, clerical expenses and supplies. The extension work in agriculture and home economics is of a similar nature to that which is being conducted in the States, modifications being made to suit local conditions. Experiment stations have been maintained by the Federal government in Alaska for many years but extension work has not been systematically done among farmers until the current year.

(d) ADDITIONAL COOPERATIVE EXTENSION WORK

Appropriation, 1931 ..... $1,000,000*
Budget, 1932 1,000,000

*Provided in Second Deficiency Act 1930.

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
Additional cooperative extension work	------	$1,000,000	$1,000,000

This appropriation was carried in the Second Deficiency Act, Fiscal Year 1930, approved July 3, 1930. It provides for additional cooperative agricultural extension work, including employment of specialists in economics and marketing, to be allotted by the Secretary of Agriculture to the several States and the Territory of Hawaii in such amounts as he may deem necessary to accomplish such purposes, and further provides that no expenditures should be made hereunder until a sum or sums at least equal to such expenditures shall have been appropriated, subscribed, or contributed by State, county, or local authorities or by individuals or organizations for the accomplishment of such purpose.

Activities under this Appropriation

These funds supplement the permanent annual appropriation provided under the Smith-Lever Act (Act of May 8, 1914), as well as those funds provided under the Capper-Ketcham Act, (Act of May 22, 1928). Like the Smith-Lever and Capper-Ketcham funds, they are paid direct to the State colleges of agriculture as federal aid for the promotion of extension work in agriculture and home economics. However, the payments of funds to the States, instead of being based upon the ratio that the rural population of each State bears to the total rural population of the States and Hawaii, are subject to determination by the Secretary of Agriculture as to the amount that he may deem necessary to accomplish the best results in each State.

(e) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1931	$15,000
Brookhart Act adjustments	260
Total, 1931	15,260
Budget, 1932	15,260

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
General Administrative Expenses	$12,000	$15,260	$15,260

Activities under this Appropriation

This appropriation covers the general expenses of the immediate Office of the Director of Extension Work, except the Director's salary, which is paid by the Office of the Secretary. The principal items of expense are for the clerical staff of the Office, including a personnel section which handles the personnel papers of the Extension Service, and for the Director's travel.

(f) FARMERS' COOPERATIVE DEMONSTRATION WORK

Appropriation, 1931	$1,550,000
Brookhart Act adjustments	3,340
Total, 1931	1,553,340
Budget, 1932	1,574,430
Increase	21,090

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Farmers' Cooperative Dems.				
Cooperative ext. work	$1,373,555	$1,392,185	$1,392,185	- -
Economic extension	- - -	58,000	58,000	- -
Motion Pictures	62,998	63,900	84,990	21,090
Reclamation demons.	34,975	39,255	39,255	- -
Total	$1,471,528	$1,553,340	$1,574,430	$21,090

The increase of $21,090 is needed primarily for personnel and equipment to develop audible motion pictures. The recent addition of

color and sound to commercial motion pictures and the practical replacement of silent pictures in the commercial field with "talkies" makes it practically imperative for the Department to produce audible pictures if it is to continue to produce pictures at all. In addition, it is believed that funds should be provided for investigation in certain fields; particularly in the use of time lapse cinematography in scientific research, such as studies of the germination of seeds and the growth of plants. The increase requested will enable the Department to make progress on these problems during the year, giving attention more particularly to the sound features of motion pictures.

Personal Services in District of Columbia.

Under this appropriation, it is also recommended that an increase of $37,820 in expenditures for personal services in the District of Columbia be authorized, without increase in appropriation, as follows:

(a) For Cooperative extension work, $10,930:

The proposed increase in Washington personnel totaling $10,930 under this project is due to the necessity of expanding the force in the Washington office dealing with the regular phases of cooperative extension work and to enable that office to extend its facilities for furnishing information and rendering the assistance needed by the States in the task of assembling, preparing and issuing of informational material for the State extension forces. It has been found that a scientifically trained man and necessary clerical assistance will be required. This shifting of funds from the field will make it possible to provide such assistance in the Washington office.

(b) For Economic extension work, $26,890:

In 1931, an increase of $58,000 was granted for this work, but only $9,200 was set aside for salaries in the District of Columbia. In view of the necessity of cooperating closely with the Bureau of Agricultural Economics and the Federal Farm Board on this phase of extension work, it has been found that the most effective service can be given to the States if sufficient employees are stationed in the District of Columbia to assemble and disseminate economic information, and in other ways assist the State economic forces in cooperative marketing and other economic problems; consequently, the extension of the salary limitation by $26,890 is requested in order to provide for employment of the necessary personnel in Washington. The remainder of the $58,000 will be utilized for travelling expenses and for cooperating with one or more States in the development of organizations to handle specific problems, such as those involved in the marketing of potatoes, tobacco, etc.

It is believed this arrangement of funds without increase in appropriation will bring about a more effective functioning of these important phases of extension activities.

Activities under this Appropriation

General

This appropriation is used for financing the Office of Cooperative Extension Work, the Office of Motion Pictures, Demonstrations on Reclamation Projects, and for direct payments to States on salaries of extension agents. The allotment for 1931 to the Office of Cooperative Extension Work is $1,450,185, of which $944,555 is allotted to the States; to the Office of Motion Pictures $63,900; for Reclamation Demonstrations $39,255, of which $33,800 is allotted to the States.

By far the larger part of the 5,942 State and county extension workers are under Federal appointment, either without compensation, or paid at rates running up to $50.00 or more per month. The compensation of these workers from Federal sources is arranged by the State directors of extension out of allotments made to the States from this appropriation at the beginning of the fiscal year. Through this allotment of approximately $978,355 these extension agents are made employees of the Federal Government as well as of the States and counties.

The Office of Cooperative Extension Work examines and recommends for approval budgets and plans of work submitted by State directors of extension, involving the expenditure of Federal and State offset funds; makes an annual examination of extension expenditures in each of the States; and gives general supervision to cooperative extension work. It employs subject-matter specialists who represent the bureaus of the Department in their contacts with the State extension forces, receives and tabulates annual reports from all extension agents, and prepares press material and reports on extension work.

Demonstrations on Reclamation Projects are conducted in cooperation with State extension services in the employment of extension agents in counties which include reclamation projects. The work of these agents is practically identical with that of other extension workers, their activities, of course, being directed especially toward successful farm operations on irrigated land. Because of the special interest of the Government in reclamation projects, more than the usual share of the expense of maintaining these agents is paid from Federal sources, this being the allotment from which such payments are made.

The Office of Motion Pictures, in cooperation with the subject-matter bureaus, prepares motion pictures illustrative of the various phases of the Department's work and makes these pictures available to the public through extension workers and other Department employees, vocational teachers, and other agencies. Since the beginning of this work, 389 different motion picture films have been prepared by the Department, of which 234 are still in circulation. The production of new films each year covers 20 to 25 subjects. The staff of the office includes scenario writers and editors, directors, photographers, and laboratory workers.

(g) AGRICULTURAL EXHIBITS AT FAIRS

Appropriation, 1931	$120,000
Brookhart Act adjustments	660
Total, 1931	120,660
Budget, 1932	129,870
Increase	9,210

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Agricultural exhibits at fairs	$119,550	$120,660	$129,870	$9,210

The increase of $9,210 is recommended in order that the Department may take greater advantage of the opportunities to disseminate useful information by means of exhibits. It is impossible to meet many of the requests that are received for Department exhibits under present conditions. The International Association of Fairs and Expositions, which has cooperated with the Department for many years in its display of educational exhibits, has urged continued and broader use of the Department exhibits.

Activities under this Appropriation

This appropriation provides for agricultural exhibits at State, interstate, and international fairs within the United States. The cost of planning, construction and demonstration of the exhibits is paid by the Department, while the State and interstate fairs, through a cooperative arrangement, finance the cost of transportation, local movement at exhibition points, and installation expenses. Each year displays are made at some 40 State and interstate fairs, the usual unit of display being a carload shipment. At national expositions such as the National Dairy Show and the International Live Stock Exposition, two carloads of exhibits, many of them specially prepared, are usually shown. In addition, in cooperation with the subject matter bureaus, exhibits are often arranged at conventions and other important gatherings of persons interested in some phase of the Department's work. The Office of Exhibits also prepares and demonstrates Departmental exhibits at international fairs outside the United States, when specific appropriation is made by the Congress for that purpose.

(h) COOPERATIVE FARM FORESTRY

Appropriation, 1931	$70,000
Budget, 1932	72,000
Increase.....	2,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Cooperative Farm Forestry.....	$59,197	$70,000	$72,000	$2,000

The increase of $2,000 is for the purpose of expanding the work in farm forestry extension. Connecticut and Utah, which at present employ extension foresters on a half-time basis, expect to employ full-time men, thus requiring a larger allotment from this item. Other states are rapidly securing necessary offset funds and have applications on file for allotments from this item.

Activities Under this Appropriation

This appropriation, which is authorized by Section 5 of the Clarke-McNary Act, (U.S.C. pp 427, 428, Secs. 564-570), is used for the employment of an extension forester, representing the Forest Service and the Office of Cooperative Extension Work, and for cooperation with the States in the employment of extension foresters. The usual arrangement is for the Federal Government to contribute $1,980 toward the salary of the extension forester, the State providing for the remainder of his salary, State travel expense, clerical help, and other necessary expenses. Usually the State contribution is considerably more than that of the Federal Government. At present this cooperative arrangement is in effect with 31 States, Hawaii, and Porto Rico. A very large part of the farm acreage of the United States is in wood land and much of the income of farmers in certain sections, particularly the Northeastern and Southern States, is from forest products. County agents generally are not trained in forest management and need the assistance of farm forestry specialists in strengthening their work in this field. The extension forester arranges demonstrations in woodlot management, selection of trees for cutting, estimating of merchantable timber, and in other fields. In many States the extension forester is also active in assisting farmers in forest planting plans, and in interesting members of boys' and girls' clubs in tree planting.

(i) COOPERATIVE AGRICULTURAL EXTENSION WORK

(Permanent Annual)

Appropriation, 1931.....$4,602,936
Budget, 1932..... 4,602,936

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932
Cooperative agricultural extension work.....	$4,602,936	$4,602,936	$4,602,936

Activities under this Appropriation

This is a permanent annual appropriation for cooperative extension work, provided in the Smith-Lever Act of May 8, 1914, as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928. Under the provisions of these Acts, $10,000 is appropriated annually to each State and Hawaii, without requirement for State offset, in addition to which the States and Hawaii share in an annual appropriation of $4,112,936 in the ratio which the rural population of each bears to the total rural population of the United States and Hawaii. This is the basic act under which cooperative extension work is conducted by the Department and the State colleges of agriculture. Extension funds and personnel have been discussed in previous paragraphs.

---------O---------

Note.--Also see Miscellaneous Section for "Collection of Seed Grain Loans."

WEATHER BUREAU

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1931	$136,000
Brookhart Act Adjustments	1,680
Total, 1931	$137,680
Budget, 1932	138,680
Increase	$ 1,000

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase U.A.S.
General Administrative	$135,390	$137,680	$138,680	$1000

The increase of $1000 is for under-average salary grade adjustments.

Activities under this Appropriation.

General administration of the Bureau is centralized in Washington and this appropriation is for the maintenance of fiscal and administrative units including offices concerned in matters of personnel, accounting, contracts, files and property.

(b) GENERAL WEATHER SERVICE AND RESEARCH

Explanation of Changes in Language

(1) The insertion of the clause "including $6,700 for investigations of the relationship of weather conditions to forest fires, under Section 6 of the Act approved May 22, 1928, (U.S.C., Supp. III., Title 16, Sec. 581e)" is recommended as a means of identifying those funds appropriated for research under the terms of the McNary-McSweeney Act.

(2) To provide necessary authority for the erection of a new building at Tatoosh Island, Wash., the following language is recommended: "not to exceed $30,000 which shall be immediately available for the construction of a build- and suitable facilities to replace the existing Weather Bureau building and facilities at Tatoosh Island, Wash., including the employment of architectural services by contract or otherwise."

(3) Omission is recommended of the following language which was inserted in the Act for 1931: "Provided further, that the amount authorized by the Agriculture Appropriation Act for the Fiscal Year 1930 to be expended for the contribution of the United States to the cost of the Office of Secretariat of the International Meterological Committee is hereby increased to $800".

Appropriation, 1931	$2,527,200
Brookhart Act Adjustments	8,000
Total, 1931	$2,535,200
Budget, 1932	2,615,520
Increase	$ 80,320

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Meteorological Observations and Reports...	$846,073	$860,110	$900,410	$30,000	$10,300
General Forecasts and Warnings..	594,327	577,130	588,050	4,000	6,920
Climatology.	648,430	660,600	668,520	--	7,920
Agricultural Meteorology.	77,202	84,080	85,080	--	1,000
River and Flood Service.....	206,500	222,620	229,220	4,000	2,600
Marine Meteorology.....	82,768	86,000	91,000	4,000	1,000
Forest Fire-Weather Warnings:					
Service...	25,714	30,690	37,120	5,950	360
Research..	4,100	4,650	6,700	2,050	120
Solar Radiation...	9,076	9,320	9,420	--	100
Totals.....	$2,494,190	$2,535,200	$2,615,520	$50,000	$30,320

The increase of $80,320 is submitted for the following purposes:

$30,320 Under-average Salary Grade Adjustments.

$50,000 increase in working funds, as follows:

(1) $30,000 for the erection of a building for office and living quarters at Tatoosh Island, Washington.

The Weather Bureau Station on the Lighthouse Reservation at Tatoosh Island, Washington, because of its geographical location, is one of the most important and necessary stations in the aid of forecasting west of the Rocky Mountains. It is an isolated point, however, without office or living accomodations except as provided by the Government.

The present Weather Bureau buildings consist of a two-story frame structure of six rooms erected in 1902 at a cost of $5,000 and a three-room shack erected in 1918 at a cost of $540. The principal structure has deteriorated greatly as the combined result of too light construction and the extreme weather conditions to which subjected. The annual rainfall on this island is 84 inches, one of the heaviest in the country, and is frequently accompanied by severe gales up to 100 miles per hour. The interior walls are lined with boards instead of being plastered, and the exterior timbers and roofing are in a partial state of decay so that leaks both from roof and sides cannot be stopped without practically complete rebuilding. The building is not worth such reconstruction, however, being entirely too small for present needs and not adapted to the peculiar climatic conditions at Tatoosh. Further repair would be an economic waste of funds.

Following a careful inspection of the station last year when the inadvisability of repairing the present structure was determined, the Bureau considered the possibility of discontinuing the station altogether. The District Forecasters for the Northwest and Coast States reported, however, that the need of the Tatoosh Station in weather forecasting west of the Rocky Mountains was fundamental and that the suggestion that it be discontinued was impractical.

A new building is urgently needed, and to permanently withstand the severe weather and provide adequate and healthful quarters, should be of concrete or other impervious construction. A concrete cistern should replace the present wooden one, now decaying, to provide household water which is secured from precipitation during the rainy season.

(2) <u>$4,000 to adequately equip a number of important field stations under the project "General Forecasts and Warnings" with furniture, floor coverings, office machines and miscellaneous supplies</u>.

The great size of the Bureau's field service, covering the entire continental United States, Alaska, Hawaiian Islands and West Indies, necessarily results in a steady demand for replacement of worn out equipment and the consumption of additional supplies, etc. with the normal growth of the population. An amount of $37,900, covering all projects, has been allotted for the fiscal year 1931 for station equipment and repairs thereto, and miscellaneous supplies and services, of which $4,900 was an additional appropriation provided for the purpose last year. The additional $4000 is urgently needed in order to maintain the field stations at a reasonable standard of efficiency.

(3) <u>$4,000 for the maintenance and expansion of the River and Flood Service</u>.

This service now has in operation 740 river gages located on important rivers of the country. A program of economy during the past several years has permitted only superficial repair of these gages which necessarily receive severe wear and tear. Additional funds for reconstruction and major repair work are now urgent.

Recent disastrous floods occurring in New England have emphasized the need of flood warning protection in that region and this item contemplates some development of the limited service now in operation there.

(4) $4,000 for the extension of the Vessel Weather Reporting Service to the southern portion of the North Atlantic Ocean, the Caribbean Sea and the Gulf of Mexico. The principal portion of the work, which consists of visiting ships when in port, inspecting the meteorological apparatus and instructing the ship observers, will be conducted from an appropriate southern port.

The work will be done in cooperation with the owners and operators of ship lines, in arranging for ships' officers to take the weather observations on specified schedules and to forward them to designated Weather Bureau Offices. The Weather Bureau cooperates with the masters in the maintaining of accuracy and standardization in the ship instruments which are used for navigation purposes as well as in the making of meteorological observations.

This project was one of the important subjects discussed by the International Meteorological Organization Subcommission at meetings held in Paris and London in 1928, as a result of which a selected ship service has been inaugurated on an international basis. The purpose of the resolutions adopted at these meetings, which were approved in the conference of directors held in Copenhagen, September, 1929, is to bring about the standardization of weather reports from ships at sea to prevent duplication of service and to effect an exchange of weather reports from ships among the meteorological services having need for them. Each of the maritime nations represented agreed to encourage the securing of observations from ships of their respective nationalities, selected from among those having approved meteorological equipment, reliable observers and radio facilities for the prompt transmission of the reports. These principles were incorporated in the Convention for Safety of Life at Sea held in London in 1929, to which the United States is signatory and awaiting ratification by the Senate.

The basis for the number of ships selected by each nation is merchant ships' tonnage. On this basis it is expected that eventually about 200 United States ships will be included in the program but several years will be required for its attainment. It is a project of high importance and should be developed as rapidly as circumstances will permit both from the standpoint of our own needs and international obligations.

The present work is now being conducted in the northern portion of the Atlantic Ocean, principally along the ocean lanes between the United States and Europe, under an appropriation of $20,000, made for the fiscal year 1930 and continued in 1931. The headquarters are at New York, where two meteorologists are engaged.

(5) $8,000 to carry out an organized program for forest protection, including $2050 for forest weather research under the provisions of Section 6 of the McNary-McSweeney Act.

(a) The Forest Fire Protection Board recommended in its report of April 1, 1929, a total annual appropriation for this project of $65,000 - to be attained in 1933. The amount of this estimate is considerably less than required to meet the Board's program for 1932. The amount available and allotted in 1931 for the organized seven districts is insufficient for the requirements of the service, and makes it impossible to organize other districts, especially in the Appalachian region, or to provide for personnel in Washington

necessary for an efficient administration of this important project. Reference only need be made to the recent destructive fires in eastern states and the Appalachian region where fire-weather warning service is in operation and where it was possible to give only meager aid to emphasize urgency in extending the work and in carrying out the Forest Fire Protection Board's program without further delay.

(b) The plan of the Department will be:

To organize, as far as the funds will admit, an additional district in the Appalachian region, where the service is urgent, to strengthen the work now being conducted in existing districts and to provide for an administrative assistant in Washington. The latter is urgently needed as the details of administration are being looked after by an official who already is fully occupied with other duties and cannot give the fire-weather project the attention it requires.

(c) Cooperation:

The additional district will be organized in cooperation with the Forest Service, State Foresters and owners of large forested areas. In this connection lookouts, rangers and other employees of these organizations will be utilized as far as possible to make weather observations and to telephone them to the Weather Bureau headquarters from which the weather forecasts and advices will be issued.

(d) Present Work:

Fire-weather warning services are now being conducted in seven districts, comprising the far western states, the upper portion of the Great Lakes region, the Adirondacks and the New England States. Appropriations were first made for the fire-weather project in 1926, with additional small increases from year to year under the continuing program, as recommended by the Forest Fire Protection Board.

Activities under Appropriation for General Weather Service and Research

The major activities of the Bureau, with one exception, are conducted under this appropriation and consist, basically, of the collection and dissemination of meteorological data and of the issuance and distribution of meteorological forecasts, warnings, and advices. They are administered by project leaders stationed at Washington, D. C., through the agency of a large field organization embracing more than two hundred permanent field headquarters located in every State of the Union, and elsewhere, and several thousand minor and cooperative stations with similar widespread geographical distribution.

Specific lines of work of particular interest recently include (a) material strengthening of the forecast and warning service in the field through the employment of additional personnel; (b) extension of corn and wheat region service into Washington, Oregon and Idaho; (c) improvement of the River and Flood Service; (d) extension of the Forest Fire-Weather Warning Service.

(c) HORTICULTURAL PROTECTION

Appropriation, 1931.....	$50,400
Brookhart Act Adjustments.....	100
Total, 1931.....	$50,500
Budget, 1932.....	61,300
Increase.....	$10,800

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Fruit-Frost Service	$27,458	$37,036	$47,676	$10,000	$640
Harvest-Weather Service	8,492	11,664	11,824	---	160
Fruit-Spray Service	1,440	1,800	1,800	---	---
Totals	$37,390	$50,500	$61,300	$10,000	$800

The increase of $10,800 is submitted for the following purposes:

$800 for Under-average Salary Grade Adjustments.

$10,000 increase in working funds, for extension of the fruit-frost service into the lower Rio Grande Valley of Texas.

(a) The fruit-frost protection service extended to growers, principally in the West Coast States, in the past several years has been strikingly successful in protecting the orchards from frost and low temperatures. With the increase requested it is proposed to inaugurate protective service in one of the important regions not now covered, namely, the lower Rio Grande Valley and coastal region of Texas. This district has approximately 75,000 acres planted to citrus fruits and also a large acreage of winter vegetables having a total value which has been estimated at $100,000,000.

(b) The plan of the Department will be:

To conduct temperature surveys in the lower Rio Grande Valley region, required to establish the thermal relations and susceptibility to frost of localities having various topographic features, and to provide special forecasts of frost and low temperatures in this district.

(c) Cooperation:

The fruit growers will cooperate with the Bureau in planning the work and in the distribution to orchardists of forecasts and warnings of impending frosts or low temperatures. At present, however, no monetary assistance from orchardists is anticipated owing to the fact

that they have not yet been organized to a point where this may reasonably be expected. Experience has shown that the invariable success of the work will be followed by organization of the growers and offers of cooperative sharing of expenses.

(d) Present Work:

Protection is now being given to citrus fruit districts in California--Imperial Valley, vicinity of Pomona and Upper Sacramento Valley--and to deciduous fruits in five districts in Washington and Oregon; also in localities in Alabama. About ten specialists are employed during the frost hazard season in the performance of field work--making temperature surveys, locating suitable orchard sites and arranging for the prompt distribution of forecasts and warnings by the Bureau.

Activities under Appropriation for Horticultural Protection

By means of expressly trained personnel, intensive specialized work is conducted in the field under this appropriation for the protection and benefit of horticultural crops. The work at present is confined principally to the States of Washington, Oregon, California, Alabama, Florida and New York. It embraces the Fruit-Frost Service for the protection of orchards, the Harvest-Weather Service for the assistance of harvesters of hay, wheat and other crops, and the Fruit-Spray Service for aid in spray operations in which weather conditions are an important factor.

(d) AEROLOGY

Appropriation, 1931	$1,400,000
Brookhart Act Adjustments	1,520
Total, 1931	$1,401,520
Budget, 1932.....	1,760,000
Increase	$ 358,480

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Aerological Observations and reports..	$71,560	$72,400	$72,760	--	$360
Aviation Forecasts and Warnings.....	19,130	19,360	19,480	--	120
Commercial Airways Service	667,880	1,272,660	1,630,480	350,220	7,600
Aerological Survey of U. S.	36,570	37,100	37,280	--	180
Totals	$795,140	$1,401,520	$1,760,000	$350,220	$8,260

The apparent increase of $393,480 is submitted for the following purposes:

$8,260 Under-average Salary Grade Adjustments.

$350,220 apparent, but due to $35,000 nonrecurring item for equipment 1931, $385,220 actual, increase in working funds, as follows:

(1) $55,160 to provide increased service in Washington and vicinity and Boston. Additional services at these two points are an essential requirement of the present airways and those to be established in the near future between New England and the South. Weather Service is not yet sufficient to provide for the increased traffic over these airways during 1932.

(2) $71,500 to provide additional service for 2,796 miles of existing airways that are at present only partly served, as follows:

New Orleans--Atlanta.....	484 miles
Wichita--Los Angeles	1,393 miles
Salt Lake City--Great Falls	507 miles
Norfolk--Washington	138 miles
San Antonio--Big Springs	274 miles

(3) $146,020 to establish service for 3,597 miles of new airways that are to begin operation on or before July 1, 1931 as follows:

Columbus--Philadelphia	415 miles
Jacksonville--Richmond	543 miles
San Diego--Dallas	1,239 miles
Dallas--Louisville	787 miles
Dallas--Birmingham	613 miles

(4) $56,060 to extend the three-hourly system of reports and forecasts in the Southwestern States with a center at Albuquerque, N. Mex.

(5) $24,240 to extend airways weather service in Alaska.

(6) $32,240 to extend airways weather service in the Hawaiian Islands.

(a) The foregoing increases are required to meet the request of the Secretary of Commerce made under date of June 13, 1930, in conformity with the provisions of the Air Commerce Act of 1926.

(b) The Plan of the Department will be:

To follow up the program of the Department of Commerce in its establishment and equipment of designated Commercial Airways with the required meteorological service as closely as practicable.

(c) Cooperation:

Very active cooperation is maintained with the Department of Commerce which has installed teletype circuits along some 8,000 miles of airways and established a network of radio broadcasting stations. The Weather Bureau's reports are transmitted by the teletype and its special bulletins and forecasts are broadcast by the radio stations.

There is also very effective cooperation with the War and Navy Departments, the data obtained at their flying fields being made available to the Weather Bureau, thus supplementing without duplication the latter's system of observations and reports.

Finally, many of the air transport companies and airport corporations cooperate in furnishing quarters and the services of their employees as weather observers without cost to the Bureau or for a nominal charge.

(d) Present Work:

At the present time about 8,000 miles of airways receive twenty-four-hour service, including hourly reports from points along those airways; about 5,000 miles receive service throughout the day and night, but not on an hourly basis, the reports being timed to fit the schedules; and about 3,000 miles receive service for day time flying only, with only two to four reports each day.

In addition to the foregoing, reports from about one hundred stations off the airways are collected every three hours at important airport stations and used as the basis for special short-period airways forecasts.

Activities under Appropriation for Aerology

The principal activity conducted under this appropriation is that of supplying meteorological service for Commercial Airways, designated as such by the Department of Commerce, under provisions of the Air Commerce Act of 1926. In addition, other projects of work include investigational studies of the upper air in the interest of general weather forecasting and air navigation, the issuance of aviation forecasts and warnings and the continuation of the Aerological Survey of the United States.

———0———

BUREAU OF ANIMAL INDUSTRY

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1931	$182,900
Brookhart Act adjustments	2,675
Total, 1931	185,575
Budget, 1932	188,325
Increase	2,750

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
General administration	$182,248	$185,575	$188,325	---	$2,750

The increase of $2,750 is submitted for Under-average Salary Grade Adjustments.

Activities under Appropriation for General Administrative Expenses

Overhead expenses in the office of the chief of bureau are taken care of by this appropriation, such as fiscal matters, audits, appointments, property, library, and editorial work.

(b) INSPECTION AND QUARANTINE

Appropriation, 1931	$795,000
Brookhart Act adjustments	3,720
Total, 1931	798,720
Budget, 1932	808,450
Increase	9,730

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Eradication of scabies in sheep	$148,188	$150,440	$152,240	----	$1,800
Eradication of scabies in cattle and horses	118,086	132,330	133,930	----	1,600
Control over interstate shipment of livestock	283,258	283,045	286,585	----	3,540
Enforcement of the 28-hour law	34,758	34,160	34,560	----	400
Inspection and mallein testing of horses for interestate shipment	277	7,450	7,550	----	100
Quarantine of animals at ports of entry	23,687	25,425	25,725	----	300
Inspection of animals for import	75,896	79,545	80,500	----	955
Supervision over the importation of animal by-products, forage, etc	70,125	78,250	79,190	----	940
Inspection and testing of animals for export	3,265	4,180	4,230	----	50
Inspection of vessels carrying export animals	2,180	3,895	3,940	----	45
Totals	759,720	798,720	808,450	----	9,730

The increase of $9,730 is submitted for Under-average Salary Grade Adjustments.

Activities under Appropriation for Inspection and Quarantine

The work under this appropriation consists of: The eradication of scabies in sheep and cattle, in cooperation with the State Livestock Sanitary authorities and the Office of Indian Affairs; investigational and inspection work relating to the existence of the various contagious livestock diseases; the inspection of animals for export and of the transporting vessels; the inspection and quarantine of imported animals, which includes the establishment and maintenance of quarantine stations, and improvements or additions to buildings thereon; supervision and control over the sanitary handling of hides, skins, wool, and other animal by-products, feeding materials, and fertilizers offered for importation; control of the interstate transportation of livestock; the inspection and mallein testing of horses for interstate shipment; and the enforcement of the 28-hour law.

Items worthy of special mention are: Increased supervision over imports at coast ports and closer cooperation with the Public Health Service to prevent the introduction of foot-and-mouth disease and other dangerous foreign maladies; an intensive campaign in cooperation with the Office of Indian Affairs to eradicate sheep scabies from the Navajo Indian

Reservation, which has already materially reduced the percentage of infection; further experimental work at public stockyards for the control of hemorrhagic septicemia in cooperation with State Livestock Sanitary officials; and the release of all territory in California under quarantine for sheep scabies except the island of San Clemente.

(c) ERADICATION OF TUBERCULOSIS

Explanation of change in language: It is recommended that the words "and avian tuberculosis" be added so that there may be no question as to the authority for avian tuberculosis work; also that in several instances the word "animal" or "animals" be changed to "cattle" so as to provide for the payment of indemnities only in connection with the destruction of cattle.

Appropriation, 1931:	
Operating expenses.....	$1,190,000
Indemnities.....	5,000,000
Brookhart Act adjustments.	5,800
Total, 1931.....	6,195,800
Budget, 1932.....	6,519,900
Increase.....	324,100

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Tuberculin testing of cattle at public stockyards for interstate shipment.....	$ 64,840	$ 66,180	$ 66,930	---	$ 750
Eradicating tuberculosis from herds of cattle and from circumscribed areas.....	1,073,240	1,097,620	1,170,620	$60,000(1)	13,000
Indemnities for animals slaughtered on account of tuberculosis.....	5,071,000	5,000,000	5,250,000	250,000(2)	---
Investigations in animal tuberculosis.....	27,113	32,000	32,350	- - -	350
	6,236,193	6,195,800	6,519,900	310,000	14,100

The increase of $324,100 is submitted for the following purposes:

$14,100 Under-average Salary Grade Adjustments.

$310,000 increase in working funds, as follows:

(1) $60,000 for the eradication of avian tuberculosis:

(a) Avian tuberculosis affects poultry, and is readily transmitted to swine. The disease causes a heavy loss to the poultry and swine industry annually in the Corn Belt. There is a demand on the part of the poultry as well as other livestock interests that the activities in connection with the control and eradication of this disease be increased.

The use of Federal funds in connection with the project of avian tuberculosis is intended to apply only to operating expenses, since no indemnity is to be paid for poultry condemned on account of tuberculosis.

(b) The plan of the Department will be:

To have 12 or 15 veterinarians of the Bureau of Animal Industry detailed to the project in the Middle Western States where the disease now exists to an alarming extent in many localities. These veterinarians will work under the direction of the proper Bureau official in charge of the State in which they are located.

(c) Cooperation:

Cooperation will be with the State Departments of Agriculture and other agencies in the State and county, provided it is found advisable to do so. These field veterinarians will follow up the work more intensively, and take such steps as may be found necessary to check the spread of the disease and bring about its eradication as far as possible. The details of cooperation will be developed and handled as the work progresses.

(d) Present work:

During the last few years the cooperating veterinarians of the Bureau, in connection with the eradication of tuberculosis from cattle and swine, have made many examinations of flocks of poultry for the purpose of learning whether tuberculosis existed among them. This work has been performed without interference with the tuberculin testing of cattle and other duties in that field of activities. On farms where tuberculosis in poultry was found to exist these veterinarians have demonstrated to the farm owner the lesions of tuberculosis in poultry, and have furnished him with information that will be helpful in controlling the disease.

(2) $250,000 additional tuberculosis indemnity funds.

(a) It is anticipated that this amount will be required in the State of California, where, under the provisions of a new State law, it will be possible for the State to pay its share of indemnity, beginning July 1, 1931.

The regular appropriation of $5,000,000 for indemnity will be required in the States excepting California.

(b) The plan of the Department will be:

To operate under the State laws of California and in accord with Federal statutes in the tuberculin testing of cattle, their condemnation and slaughter, and the indemnification of the owners

(c) Cooperation:

With State and county authorities.

(d) Present work:

In California, owing to lack of legal authority heretofore, no State appropriations have been made for the payment of indemnities for animals condemned as tuberculous, so that there is no work at present on eradication.

Activities under Appropriation for Eradication of Tuberculosis

The work of eradicating bovine tuberculosis has been in progress since 1917. It is conducted in cooperation with the State and county authorities, as well as the livestock owners. Under the provisions of the Federal law, the owners of tuberculous cattle that are condemned and slaughtered in connection with this campaign are reimbursed to some extent by the Federal Department. Since the inauguration of the campaign the disease has been gradually eliminated, and it is considered that substantial progress has been made. The outlook for a successful conclusion is favorable, provided there is no interruption to the work. On October 1, 1930, there were 1,035 counties, located in 38 States, parts of 3 other counties, and 43 Vermont towns, in which the degree of bovine tuberculosis was shown by actual test to be not more than one-half of one per cent of the cattle population. Such localities are designated as modified accredited areas. There are approximately 28,000,000 cattle, contained in about 3,000,000 herds, under supervision for the eradication of bovine tuberculosis. There is an increasing demand for this work in localities where, as yet, it has been impossible to conduct a systematic campaign of eradication. The States and counties appropriate funds amounting to approximately $13,000,000 a year for use in this cooperative work.

(d) ERADICATING CATTLE TICKS

Appropriation, 1931	$770,000
Brookhart Act adjustments	1,900
Total, 1931	771,900
Budget, 1932	775,640
Increase	3,740

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Eradicating cattle ticks	$725,415	$771,900	$775,640	----	$3,740

The increase of $3,740 is submitted for Under-average Salary Grade Adjustments.

Activities under Appropriation for Eradicating Cattle Ticks

This appropriation is expended in the payment of salaries, travel, and office expenses of veterinarians and agents, in cooperation with officials and cattlemen of the States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, and Texas, in the eradication of the cattle fever tick, which spreads splenetic fever infection among cattle.

As tick-infested areas are cleaned up they are released from Federal quarantine, and livestock may then be shipped to market without restriction. The States generally spend larger sums in this work than the appropriation provided by the Federal Government. The work is conducted under the laws and regulations of the several States. The Federal appropriation is expended largely for supervision, thus insuring that eradication measures be so carried out as to bring about the elimination of the tick and warrant the release of cleaned areas from quarantine. At present the Bureau is arranging for an enlarged eradication program in the States of Texas, Arkansas, and Louisiana, additional money for which is included in the current appropriation act.

(e) ANIMAL HUSBANDRY INVESTIGATIONS

Appropriation, 1931:		
Animal Husbandry Investigations, except Poultry		$529,085
Brookhart Act adjustments		1,400
Animal Husbandry (Poultry Feeding and Breeding Invest.)		190,450
Brookhart Act adjustments		570
Total, 1931		721,505
Budget, 1932:		
Animal Husbandry Investigations, except Poultry	$548,610	
Animal Husbandry (Poultry Feeding and Breeding Investigations)	191,320	739,930
Increase		18,425

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Swine investigations	$ 57,626	$ 61,947	$ 64,387	$2,000(1)	$ 440
Sheep and goat investigations	103,187	108,500	109,135	- - -	635
Horse and mule investigations	36,778	39,200	41,935	2,500(2)	235
Genetic research	19,902	21,400	21,525	- - -	125
Beltsville Farm	53,592	55,000	55,325	- - -	325
Beef cattle investigations	97,441	152,720	164,080	10,495(3)*	865
Certification of pedigrees	3,869	6,340	6,375	- - -	35
Poultry investigations	116,443	191,020	191,320	600(4)**	900
Nutrition research	37,098	37,225	37,455	- - -	230
Meat investigations	34,829	35,653	35,818	- - -	165
Livestock Production, Big Springs, Texas	- - -	12,500	12,575	- - -	75
Totals	560,765	721,505	739,930	14,395	4,030

* Actual increase for Beef Cattle, $20,495, due to non-recurring items of $10,000, as follows: $5,000 for painting, repairs, water system, etc. at Miles City; $5,000 for equipment at Beltsville.

** Actual increase for Poultry Investigations, $25,000, due to non-recurring items of $25,600, as follows: $20,000 for construction, Beltsville, $5,600 for purchase of land and construction, Glendale.

While there is an apparent increase of $18,425 under this appropriation, due to the omission of non-recurring items amounting to $35,600 the actual increase in working funds is $54,025, submitted for the following purposes:

$4,030 Under-average Salary Grade Adjustments.

$49,995 increase in working funds, as follows:

(1) $2,000 - swine investigations; clearing land and fencing, Beltsville.

(a) Additional cleared land is needed to produce experimental animals and to so manage experimental herds that this practice will conform to recommended practices.

(b) The plan of the Department will be:

Clearing land at Beltsville from the large tract of second-growth timber will proceed as funds are available.

(c) Cooperation:

Conducted in cooperation with many State Experiment Stations, with farmers, and other agencies.

(d) Present work:

Includes investigations as to soft pork, experiments in the production of Wiltshire bacon, and experiments in inbreeding and crossbreeding. The allotment to the project this year is approximately $62,000.

(2) $2,500 - horse and mule investigations; farm power studies.

(a) It is believed by many that horse power is the most efficient in many instances. So, in addition to the study of thermo-efficiency of horses, collaboration in the study of the farm power problem in the different areas of the United States is proceeding through field research, conferences, and the assembling and analysis and preparation for publication of data obtained.

(b) The plan of the Department will be:

Representatives of the Department will visit numerous farms to collect data and assemble and analyze the findings.

(c) Cooperation:

These studies are conducted cooperatively by the Bureaus of Animal Industry, Agricultural Economics, and Public Roads and State Agricultural Experiment Stations. Eleven States have participated.

(d) Present work:

Study of this problem is made to determine the relative efficiency of horse-drawn and mechanically operated equipment for the various farm power operations in different parts of the country and on farms of varying size and topography, approximately $2,500 being spent this year from approximately $39,000 for hors and mule investigations. A detailed study is made of operations on 150 farms in cooperation with the State Agricultural Experiment Stations in eleven States.

(3) $20,495 for beef cattle investigations, as follows:

$9,000 for pasture and water development and shed and lot construction at Miles City, and
$11,495 for clearing land at Beltsville, including fencing.

(a) Range cattle investigations at Miles City have been handicapped because of lack of buildings and corrals and fences and water development on the range. Existing buildings and corrals were constructed by the War Department many years ago. The old fences were constructed with smooth wire for horses only, which is not adequate for cattle and sheep. Division of the pastures is necessary to make a proper study of range utilization and livestock management. Cross fencing is needed which will make it possible to have the summer range and winter range divided into smaller areas to permit the handling of cattle, sheep, and horses under varying range conditions. Such division of large areas into smaller pastures will necessitate water development by the use of wells and reservoirs.

At Beltsville there is not now sufficient cleared land available for pasture development and the raising of feed crops satisfactorily and economically to care for the beef and dual-purpose cattle required for existing projects. It costs two to three times as much to carry cattle in dry lot on purchased feed as it does to carry them on pasture and feed produced on the farm. It is well recognized that good pasture is the basis of a profitable beef and dual-purpose cattle industry.

(b) The plan of the Department will be:

To clear and develop available land as quickly as funds will permit.

(c) Cooperation:

These investigations and experiments are conducted in cooperation with other branches of the Department, State Agricultural Experiment Stations, farmers, and representatives of the industry and other agencies.

(d) Present work:

These investigations are carried on at several places in the United States in addition to the work at Beltsville and Miles City. At Beltsville grazing experiments are made in cooperation with the Bureau of Plant Industry, requiring additional land, while at Miles City extensive investigations are proceeding both as to pasture and as to winter rations.

(4) $25,000 for Poultry Feeding and Breeding, divided into:

$20,000 for feeding research, to be expended at Beltsville.
$2,000 for meat and egg quality studies.
$1,000 for hatchability research.
$2,000 for breeding research.

(a) The poultry industry of this country has an annual valuation of over $1,000,000,000, the farm value of eggs produced and

chickens raised each year. The industry suffers heavy losses through lack of proper growth of the chicks, influenced partly because of improper methods of feeding. Little research work has been done to determine the proper amounts and kinds of protein supplements for growing and laying rations and to determine the proper kinds and amounts of vitamins and minerals to add to the grain rations for various classes of poultry. Because of this lack of information, a large proportion of birds are sent to market in an improperly finished condition with the result that producers lose money and consumers do not secure the quality of product desired. Proper methods of feeding should be investigated and work should be undertaken on the methods of preparing poultry for market, particularly with respect to the proper length of time to fatten them in fattening batteries and the kind of fattening rations that should be used and methods of killing and dressing poultry for market.

As to egg and meat studies, there is urgent need, because of deterioration in quality of both eggs and poultry meat partly as a result of methods of rearing and general methods of production, and studies should be undertaken to determine the influence of the kind of diet on the quality of both eggs and poultry meat.

Breeding research should include the problem of the inheritance of egg production and vigor as over 60 per cent of the total poultry receipts come from eggs, and egg production is the most important factor affecting poultry farm income.

(b) <u>The plan of the Department will be:</u>

Plans include feeding basic rations of staple grains to which protein, vitamin, and mineral supplements have been added to determine their influence on growth, egg production, and fleshing qualities. Work will be carried on over a period of years with large numbers and different breeds of birds. Male birds will be fattened, with observation of the effect of various rations on fleshing quality, and pullets will be observed as to the influence of different proteins, vitamins, and minerals on egg production.

A trained bacteriologist will be employed to cooperate with other employees in dealing with a determination of factors that affect egg and poultry meat quality, with studies on eggs and poultry meat produced under different conditions and diets.

The hatchability work now under way will be continued, the increa increase being used for laboratory supplies and materials.

In breeding research a qualified man, trained in genetics, will be appointed to assist in this work now carried on at Beltsville.

(c) Cooperation:

All of the work will be done at Beltsville, but there will be cooperation with the U. S. Egg Society and the National Poultry Council, which have been cooperating in research projects. There will be cooperation with the Bureau of Agricultural Economics to determine to what extent factors of production affect the grading of poultry for market, and with the Bureau of Home Economics to determine the effect of various factors of production on the edible quality of poultry meat and eggs.

(d) Present work:

A beginning has been made in research work in poultry nutrition, but the poultry industry has urged that present plans be enlarged so that problems might be solved within a reasonable time. This year there is allotted approximately $37,500 to these phases of the poultry research activities.

Activities under Appropriation for Animal Husbandry Investigations

These investigations deal with livestock problems of regional and national importance having to do with animal genetics and breeding research, and feeding and farm management of domestic farm animals, including poultry. Results are measured in terms of quantity and quality of the animals or their products. Several projects are included which embrace beef and dual prupose cattle, sheep, goats, wool and mohair, swine, horses and mules, poultry, meat investigations, nutrition research, and animal breeding investigations. The proper place of the various classes of livestock in any profitable and permanent system of diversified agriculture for the broad agricultural regions in the United States is considered. Many of these studies involve a measure of the performance of meat animals in terms of edible products produced or products of use to mankind.

(f) INVESTIGATIONS IN ANIMAL DISEASES

Explanation of change in language: The insertion of the words "including not to exceed $15,000 for the construction of buildings at Beltsville, Md." is recommended in order that there may be specific authorization under this sub-item for construction of laboratory and other structures to house workers, animals, apparatus, and supplies, particularly on animal parasite work at Beltsville.

Appropriation, 1931:	
Investigations of Animal Diseases, except Abortion..	$300,000
Brookhart Act adjustments.....	1,578
Contagious Abortion Investigations.....	100,000
Total, 1931.....	401,578
Budget, 1932.....	462,920
Increase.....	61,342

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Miscellaneous pathological investigations	$ 7,578	$ 8,265	$ 38,440	$30,000 (1)	$ 175
Pathological investigations of poultry diseases	16,559	22,000	34,210	12,000 (2)	210
Miscellaneous biological investigations	21,806	21,660	21,770	---	110
Pathological investigations of anaplasmosis	14,830	12,363	15,905	3,422 (3)	120
Investigations of stock poisoning by plants	21,808	25,990	26,240	---	250
Special barley investigations (research)	3,000	3,500	3,535	---	35
Index catalog and collection of parasites	9,777	9,270	9,360	---	90
Investigation of poultry parasites	12,603	12,195	12,310	---	115
Investigation of swine parasites	17,266	25,760	26,000	---	240
Investigation of ruminant parasites	96,370	112,410	113,520	---	1,110
Investigation of horse parasites	12,258	9,590	9,680	---	90
Investigation of miscellaneous parasites	12,234	16,030	16,180	---	150
Investigation of treatment of livestock for internal external parasites	8,122	13,245	13,370	---	125
Development of laboratory station, Beltsville, Md.	---	---	13,000	13,000 (4)	---
Breeding and feeding small animals for disease research	7,275	9,300	9,400	---	100
Investigation and control of bovine abortion	88,088	100,000	100,000	---	---
Totals	349,574	401,578	462,920	58,422	2,920

The increase of $61,342 is submitted for the following purposes:

$2,920 Under-average Salary Grade Adjustments.

$58,422 increase in working funds, as follows:

(1) $30,000 for miscellaneous pathological investigations, in three items:

$20,000 for investigations of the cattle disease, hemorrhagic septicemia:

(a) Hemorrhagic septicemia causes heavy losses in cattle that have been shipped, in spite of the fact that biological immunizing agents have been developed that are highly efficacious experimentally and under proper farm conditions. These losses occur principally in stocker and feeder cattle following transportation by rail from the home farm through stockyards to final feeding lots. Losses usually occur shortly after arrival at final destination. During transit the vitality of the animals, due to a number of factors, is lowered and many of the animals frequently develop pneumonia (hemorrhagic septicemia type) with fatal results. The disease is prevalent wherever cattle are shipped and is nation-wide in extent.

(b) The plan of the Department will be:

To prepare supplies of hemorrhagic septicemia immunizing agents (serum, bacterin, and aggressin), so that there will be a uniformity of these products, which will be used on a large number of animals under different conditions before they leave the home farm. These animals will be followed to their final destination where their condition will be checked against similar lots of non-vaccinated cattle. To study experimentally the standardization of production and use of hemorrhagic septicemia biologics. At present there is a lack of uniformity in production and use of these products, in many cases with insufficient information for their justification.

(c) Cooperation:

With various livestock sanitary boards, public stock yards officials, common carriers, and livestock owners.

(d) Present work:

Work is limited to experimental investigations on methods of administration of biological products already developed. A study of conditions under which animals are shipped and the relation of these conditions to the losses that occur has also been undertaken. Very small expenditures are made.

5,000 for investigation of foot rot in cattle and sheep:

(a) Foot rot in cattle and sheep is of considerable concern to stockmen and heavy losses are caused, particularly in the sheep-raising sections, from this disease. While the disease has been known for years and various methods of treatment have been advocated, there is need for improvement on methods of treatment now used. Recently, an investigator in California has called attention to the presence of spirochetes in the lesions of foot rot in sheep which he believes are concerned in the cause of the disease. A specific

organism, B. necrophorus, has been considered to be the principal germ responsible for the disease. In view of the lack of a satisfactory method of treatment of foot rot, further experimental work on the subject is needed.

(b) The plan of the Department will be:

To use various drugs and the application of methods of treatment suitable to field conditions on infected lots of sheep and cattle. To study the disease bacteriologically to determine if organizms other than B. necrophorus are responsible factors in its cause. The disease is of most importance in the sheep-raising States, although it is found in sheep and cattle in many sections of the country. Field work would possibly be undertaken in California.

(c) Cooperation:

With the State Livestock Sanitary officials in California and other sheep-raising States.

(d) Present work:

No work is done at the present time.

$5,000 for investigations of mammitis of cattle:

(a) Mammitis, mastitis, or garget, an inflammation of the udder, is the cause of great loss to the dairy industry. The disease is present at some time or other in practically all dairies and the milking value of many high-producing cows is ruined following an attack. Various types of bacteria have been recovered from the milk of affected animals and have been held responsible for the trouble. However, outside of sanitary measures little definite information is at hand on the prevention and treatment of the disease. Autogenous vaccines have been used in some cases with encouraging results, in others without success. There is urgent need for more information on the cause and treatment of the disease.

(b) The plan of the Department will be:

To study the disease in infected herds as to its epizoology; to make bacteriological studies of specimens from diseased animals in a search for the causative agent; to study the effect of vaccines, made from bacteria recovered from diseased animals, in the prevention and treatment. The disease is found wherever dairy cattle are kept. Work would be performed in the Department laboratories at Washington, the Experiment Station at Bethesda, and in suitable dairy herds.

(c) Cooperation:

Livestock owners and veterinarians.

(d) Present work:

Work is now limited to the preparation of autogenous vaccines for treatment in local herds as time permits, with negligible expenditures.

(2) $12,000 for pathological investigations of poultry diseases, specifically the study of infectious bronchitis of poultry.

(a) This disease has gained prominence in the past six years. Tremendous losses are sustained from this disease at poultry-fattening stations, in shipped birds, and on the farm. Nothing definite is known of the etiology of the disease, except that it is of an infectious nature. Experimental study on the cause and nature of the disease is necessary in order to formulate plans for its control. Attention has been called to the large extent of the poultry industry in the argument for increases to promote better feeding and breeding. There is little use in increasing the number and quality of fowls if diseases, such as this, are permitted to ravage them. The disease is especially prevalent in the poultry-raising sections of California, but is equally prevalent wherever there are large poultry flocks. Practically all States have encountered this disease to a greater or less extent. It seems to be on a rapid increase.

(b) The plan of the Department will be:

To make laboratory studies of birds sick of the disease in an effort to determine the causative agent, methods of spread, and means of immunization. To study the disease under field conditions to determine possible predisposing factors. Work would be done at the Experiment Station at Bethesda, Md., and probably in California.

(c) Cooperation:

Agricultural Experiment Station, California, and poultry owners and dealers.

(d) Present work:

A very limited amount of laboratory work on the etiology of the disease as opportunity permits.

(3) $3,422 for the study of anaplasmosis of cattle.

(a) The disease anaplasmosis has come into prominence in the last few years in a number of Southern and Southwestern States where it causes heavy losses in cattle. While the disease evidently has been in this country for years, it existed as a concomitant infection with tick fever and escaped recognition. With the eradication of tick fever from certain States losses of cattle were found to be due to anaplasmosis which is caused by a protozoan organism which invades the blood stream and acts in a manner similar to the parasite causing tick fever, in many cases resulting in the death of the affected animal. Recovered cases harbor the parasite in their bodies and act as reservoirs for the further spread of the disease. There is need for considerable experimentation to determine the various ways by wich the disease is spread. Several species of ticks are known to be capable of transmitting it and there is a strong possibility that other tick species may act as vectors. The part that other insects, as biting flies and mosquitoes, play as factors in the spread remains to be determined. Practical measures for the control of the disease would also include effective immunizing agents, better methods of diagnosis and treatment. These must be worked out by experimentation.

(b) The plan of the Department will be:

To work in cooperation with the States of Oklahoma, Kansas, and Florida in a study of the vectors responsible for the transmission of the disease; to experiment on methods of immunization; and treatment with various drugs or combinations of drugs. The disease exists in many of the Southern and Southwestern States, and work would be done in this section of the country and at the Department laboratories at Washington and the Experiment Station at Bethesda.

(c) Cooperation:

The Oklahoma A. & M. College and Agricultural Experiment Station; the Kansas State Live Stock Commission and the Kansas State Agricultural Experiment Station (Veterinary Department); veterinarians and livestock owners.

(d) Present work:

Cooperative work with the Oklahoma A. & M. College and Agricultural Experiment Station, and the Kansas State Live Stock Commission and State Agricultural Experiment Station, on transmissibility by insects and on studies on immunization. Treatment in the field by means of drugs is being tried out in Florida. Experimentally infected animals are under observation at the Experiment Station at Bethesda. Approximately $12,000 is allotted to work for this year.

(4) $13,000 for the development of laboratory station, Beltsville, Md., including clearing land, etc.:

(a) In conducting an investigation on parasites of livestock it is necessary to begin with the identification of the parasite in order to have exact information as to the cause of the trouble. It is next necessary to know the life history, in order to have this basic information in developing practical control measures. This work is done at the Washington laboratories. The next steps in an investigation are to ascertain the natural conditions modifying the various developmental stages of the parasites. Such an investigation must ascertain how long parasite eggs and larvae live in manure, in clay, in sand, in humus; at different temperatures from very cold to very hot; at different degrees of moisture, from constantly wet to constantly dry; and under different conditions of light and darkness. The next steps are to apply the findings of the studies on natural conditions to such practical procedures as plowing, pasture rotation, use of separate lots for young animals and their mothers, various sanitary procedures, use of special plants in parasite control, etc. The Beltsville laboratory is to supply a place for this type of work. The next step is to develop medicinal treatments for parasitic infestations. At present this work is carried out at Bethesda under very unfavorable conditions. The next steps are the publication of control measures, the testing of control measures on farms in cooperation with farmers, the development of cooperative procedures with the Extension Service and other agencies, etc.

(b) The plan of the Department will be:

Construction of a small temporary building to take care of a few animals; fencing, plowing, seeding, procuring animals, feed, equipment, etc.

(c) Cooperation:

This proposed station is for cooperative work with the Food and Drug Administration, the Biological Survey, the Forest Service, the National Park Service, the Bureau of Fisheries, and other groups which require the service of the Bureau of Animal Industry and which cooperate to the extent of furnishing specimens, material for examination and test, etc.

(d) Present work:

The present work along the lines for which this station is intended is carried on as a makeshift arrangement in odd places, with animals tucked around in crowded and inconvenient places. The station is essential to the entire program of the Bureau and the lack of it interferes with all developments of work in the control of parasites of livestock.

Activities under Appropriation for Investigations in Animal Diseases

The basic research which enables the livestock industry to stop the ravages of animal diseases and various parasites is conducted under this appropriation. These livestock enemies, though usually microscopic in size, are vicious and ruthless in their attacks. They destroy tissue, interfere with the normal functions of organs, and reduce the value and productive capacity of affected animals.

Abortion disease, for instance, causes losses estimated at about $50,000,000 annually, and there is an insistent demand especially from dairymen and cattle breeders for more effective means of control. Recent experiments in vaccinating dogs against rabies to make them immune to the disease have given encouraging results but further study is needed. Success in such research will mean that dogs can be rendered immune to rabies and thus be safer associates for persons and livestock. Excellent progress has been made in recent years in solving the mysteries of stock poisoning by plants. Yet, within the last year 25 plants not previously studied came under suspicion and are now being investigated.

It is essential to know first the cause of disease and mode of dissemination, and, if caused by parasites, to know the life histories of the parasites and their resistance to atmospheric conditions and chemicals, before effectual control methods can be devised and applied. This essential knowledge is gained only through research and experimentation. The Bureau carries on this work independently in its laboratories and experiment stations and in cooperation with State Experiment Stations.

Practically all regulatory work, inspection services, and successful methods of disease prevention now in common use are the fruit of research conducted in the past.

(g) INVESTIGATION, ERADICATION, AND CONTROL OF HOG CHOLERA

Appropriation, 1931:	
Eradication and Control	$187,760
Brookhart Act adjustments ..	620
Control of Viruses.....	278,530
Brookhart Act adjustments ..	1,600
Hog Cholera Research	30,710
Brookhart Act adjustments ..	260
Total, 1931.....	499,480
Budget, 1932	506,030
Increase	6,550

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Hog cholera control looking to eradication.....	$172,813	$188,380	$190,240	---	$1,860
Investigation of methods of producing immunization against hog cholera.....	17,035	17,600	18,000	---	400
Investigation of mode of dissemination of hog cholera.....	12,875	13,370	13,720	---	350
Control of manufacture, importation, and shipment of viruses, serums, toxins, etc..	274,980	280,130	284,070	---	3,940
Totals	477,703	499,480	506,030	---	6,550

The increase of $6,550 is submitted for Under-average Salary Grade Adjustments.

Activities under Appropriation for
Investigation, Eradication, and Control of Hog Cholera

Hog cholera is the most destructive disease of swine in our country. The direct losses from the disease have varied from 20 to 65 million dollars annually. The losses for any one year have never been less than 20 million dollars. The work of the Bureau has led to the discovery of anti-hog-cholera serum through the use of which efforts are directed to the reduction of these losses. It is estimated that cholera losses for the present fiscal year will be materially reduced and perhaps be lower than for any year since records have been kept. The funds appropriated for hog-cholera work are used to study the disease, including the ways by which it is disseminated and the most effectual means of prevention; to supervise the production of biological products, including anti-hog-cholera serum and hog-cholera virus, at practically all the large commercial laboratories in the United States, as well as to inspect biologics imported into this country; and to cooperate with the various States in the control of hog cholera with the view of preventing losses.

(h) ERADICATING DOURINE

Appropriation, 1931	$17,500
Budget, 1932.....	32,990
Increase.....	15,490

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Eradicating dourine.....	$32,800	$17,500	$32,990	$15,300	$190

The increase of $15,490 is submitted for the following purposes:

$190 Under-average Salary Grade Adjustments.

$15,300 increase in working funds for dourine eradication in northern Nevada, on the Western Shoshone Indian Reservation, in southeastern Oregon, in southern Idaho; and on the San Carlos Indian Reservation in Arizona.

(a) Dourine is a disease of mares and stallions communicated through the act of breeding. After the reduction in the appropriation for 1931 over 1930 was recommended there occurred an unexpected spread of this infection.

(b) The plan of the Department will be:

Infected areas in the first three aforementioned States are under State quarantine. The plan of procedure in these instances will be to first take blood serum from horses on the ranches and subject the same to laboratory test; then to proceed with a roundup of horses on the range, obtain blood samples for testing, mark the animals with an identifying number, and later destroy those which have reacted, the Department sharing with the State in indemnifying owners of animals found to be diseased. The work is seasonal and for the most part is limited to the summer months, or from April to October, inclusive. The large area to be covered and number of horses to be tested will necessitate assignment of from 7 to 10 veterinary inspectors for a period of approximately 6 months during the year, which, with the payment of their expenses for travel and payment of a share of indemnity for reacting animals will necessitate this estimated increase.

(c) Cooperation:

Work will be performed in cooperation with the State livestock sanitary authorities of the States involved, and on the Western Shoshone Indian Reservation with the cooperation of the Office of Indian Affairs. It is not proposed at the present time to undertake eradication work on the San Carlos Reservation in Arizona until some plan can be devised by the Office of Indian Affairs for the control and destruction of the many undersized wild horses running in inaccessible portions of that jurisdiction.

(d) Present work:

At present the Bureau is conducting dourine-eradication work in Nevada, Oregon, and Idaho as previously described and will so continue during the fiscal year so far as funds are available.

Activities under Appropriation for Eradicating Dourine

In cooperation with State livestock sanitary authorities and on Indian reservations with the Office of Indian Affairs, horses in areas where the infection of douring is believed to exist are rounded up and samples of blood obtained for subjection to a laboratory test. Horses reacting to the test are slaughtered and owners other than Indians on a reservation indemnified by the State and Federal Government. Indemnity to Indians is paid by the Office of Indian Affairs. Surplus stallions are castrated. Wherever possible the roundup in the early summer is followed by a further roundup and retest later in the season. Horses in sections where the disease is not known to have been eradicated by one season's work are retested during the following year.

(i) PACKERS AND STOCKYARDS ADMINISTRATION

Appropriation, 1931.....	$415,000
Brookhart Act adjustments...	2,880
Total, 1931.....	417,880
Budget, 1932.....	407,810
Decrease.....	10,070

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Enforcement of the Packers and Stockyards Act.....	$392,943	$417,880	$407,810	-$15,000	$4,930

The net decrease of $10,070 results from the transfer of three employees to the Office of the Department Solicitor, together with the appropriation covering their salaries, amounting to $15,000, and the allowance of an increase of $4,930 for Under-average Salary Grade Adjustments.

Activities under Appropriation for Packers and Stockyards Administration

The work under this project embraces supervision of the business of packers, stockyard owners, market agencies, and dealers engaged in interstate commerce, and includes regulation of practices and rates and charges for service rendered at posted stockyards. Jurisdiction is exercised, through 20 field offices, over approximately 1,300 market agencies and 3,200 dealers at 73 stockyards. Varied activities are carried on under this project, the more important of which are (1) registration and bonding of market agencies and dealers; (2) investigations of complaints as to unfair and unjustly discriminatory practices; (3) supervision of the testing and maintenance of livestock scales at the various markets; (4) valuation of the properties of stockyard companies, which includes inventories and appraisals of the real estate and physical structures of such companies, together with comprehensive analyses of their financial operations and organization and complete audits of their books and records, for the purpose of obtaining information for the use of the Secretary in determining the reasonableness and

lawfulness of rates and charges for stockyard services; and (5) investigations of the operations of commission men and audits and analyses of their books and records in connection with the determination of rates which would be reasonable for them to charge for the purchase and sale of livestock at public markets. Of particular interest are commission men and stockyard rate cases. Following the decision of the Supreme Court in the Omaha commission men's rate case upholding the right of the Secretary of Agriculture to prescribe rates for handling of livestock on a commission basis at public stockyards, a hearing was held last year at Sioux City and hearings will be held this year at Kansas City, South St. Joseph, and possibly at one or two other markets, to determine the reasonableness of commission rates. During the year hearings were held as to the reasonableness of stockyard rates at South St. Joseph and Denver (with oral arguments before the Secretary), and at Kansas City, and such hearings will be held this year at National Stock Yards and Omaha. Stockyard and commission men's rate hearings will be held at a number of other markets during the fiscal year 1932.

(j) MEAT INSPECTION

Appropriation, 1931.....	$5,640,000
Brookhart Act adjustments	21,140
Total, 1931.....	5,661,140
Budget, 1932.....	5,749,790
Increase.....	88,650

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Special supervisory inspection	$20,682	$27,375	$27,800	---	$ 425
Laboratory inspection	86,837	92,350	93,800	---	1,450
Ante-mortem inspection of animals for slaughter.....	288,797	280,400	284,775	---	4,375
Post-mortem inspection of animals.....	2,600,210	2,589,720	2,630,270	---	40,550
Control of the preparation of meats and meat food products	2,525,396	2,593,770	2,634,410	---	40,640
Inspection at public markets..	1,163	13,285	13,485	---	200
Control of operations conducted under certificates of exemption.....	620	6,000	6,100	---	100
Inspection of imported meats and meat food products.....	35,250	29,440	29,900	---	460
Investigation of the wholesomeness and nutritive value of viscera.....	13,569	13,400	13,610	---	210
Investigation of pathological conditions noted during meat inspection.....	14,745	15,400	15,640	---	240
Totals	5,587,269	5,661,140	5,749,790	---	88,650

The increase of $88,650 is submitted for Under-average Salary Grade Adjustments.

Activities under Appropriation for Meat Inspection

The meat-inspection service of the United States was perfected under the Act of June 30, 1906. This act and the regulations thereunder are based upon the best available scientific and technical knowledge and are generally regarded as models for such enactments throughout the world. The purpose of the service is to eliminate and dispose of carcasses and meat food products found to be diseased, unwholesome, or otherwise unfit for human food; to see that meat and meat food products for human consumption are prepared in a cleanly manner; to guard against the use of harmful dyes, chemicals, and other deleterious substances; to prevent the use of false or misleading names or statements on labels; and to supervise the interstate transportation, exportation, and importation of meat and meat food products. During the past fiscal year this inspection required about 2,500 employees in 259 cities at 804 establishments where about 75,000,000 animals were examined before and at slaughter, of which 266,000 animals and carcasses and 966 parts of carcasses were condemned and destroyed, and where 8,960,935,000 pounds of product were reinspected during the various procedures of preparation, of which 8,351,846 pounds were condemned and destroyed. During the year 1,248,057,000 pounds of meat and meat food products and 47,000,000 pounds of inedible animal products were certified for export, and 136,887,000 pounds of foreign meat were inspected for entry into this country, of which 171,200 pounds were condemned and destroyed or refused entry.

(k) ERADICATING FOOT-AND-MOUTH AND OTHER CONTAGIOUS DISEASES OF ANIMALS

Appropriation, 1931:	
1930 unexpended balance reappropriated for 1931, $1,623,206.27, of which it is estimated there will be used	$100,000
Estimate for 1932 for further use of the unexpended balance	100,000

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Eradicating foot-and-mouth and other contagious diseases of animals.....	$44,146	$90,000	$90,000	---
Eradication of the European fowl pest, etc.....	6,986	10,000	10,000	---
Totals	$51,132	$100,000	$100,000	---

Activities under Appropriation for Eradicating Foot-and-Mouth and Other Contagious Diseases of Animals

This country is free of foot-and-mouth disease and many other dangerous animal maladies. This condition is due to the practice of eradicating promptly all such diseases when outbreaks occur. During the outbreak of foot-and-mouth disease in California in 1924, $3,500,000 was appropriated in the second deficiency bill of the 66th Congress for eradication. Not all of this sum was used, but in order that the Department might not be without funds should outbreaks occur when Congress is not in session, the unexpended balance has been made available each year since. In the outbreak of 1914-15 the Department found itself in just this predicament and eradication was only carried on by using current appropriations, trusting to the action of the next Congress for reimbursement. This appropriation is more in the nature of an authorization than an actual appropriation of money and is an assurance of prompt action in the event of outbreaks. The allotment of $100,000 made from the unexpended balance of the general appropriation will be used, as has been the custom with former allotments, in investigating reported outbreaks of foot-and-mouth disease, and in inspections for the disease of animals passing through public stockyards.

----------0----------

Note - Also see Miscellaneous Section for "Experiments in Livestock Production in Southern United States", and "Services to Other Departments".

BUREAU OF DAIRY INDUSTRY

SALARIES AND GENERAL EXPENSES.

Explanation of change in language in introductory paragraph:
The language of the introductory paragraph has been changed by omitting the general authority for repairs and additions to buildings as well as the authority for building construction. General authority for repairs to buildings is included in the item for dairy investigations, as is authority for the expenditure of $30,000 for construction.

(a) General Administration

Appropriation, 1931	$ 67,000
Brookhart Act adjustments	1,169
Total, 1931	68,169
Budget, 1932	75,400
Increase	7,231

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Administration	$ 66,940	$ 68,169	$ 75,400	$6,831	$400

The increase of $7,231 is submitted for the following purposes:

$400 under-average salary grade adjustments.

$6,831 increase in working funds as follows:

With the steady development of the investigational or research activities of the Bureau of Dairy Industry there has been a corresponding increase in the administrative work although the appropriation for the latter has remained at about the same amount since the Bureau was created in 1924.

To meet the increased work of the bureau it has been necessary during the current fiscal year to transfer the salary of an employee attached to the engineering staff to the appropriation for Dairy Investigations. $3,800 of the increase is requested so that this employee can be carried on the general administrative item. The remainder of the increase is needed to provide for the employment of an assistant on the library staff ($1,620), and $1,411 for travel expenses,

Activities under Appropriation for General Administration.

For purposes of administration the work of the Bureau of Dairy Industry is divided into six major coordinate divisions, five of which are engaged in scientific research while the sixth, or administrative division, is engaged in administrative activities common to the entire Bureau. These activities include the editorial and informatiom work, engineering, accounts, personnel, and property, library, mails and files, messenger and char service, and tabulating machine unit.

(b) Dairy Investigations

Explanation of change in language: Amended by substituting the amount $15,975 for $11,000 in order to permit the purchase of another tract of land at Beltsville, Maryland, during 1932.

The items for Field Station, Woodward, Oklahoma, and Dairy and Livestock Experiment Station, Tennessee, under Bureau of Dairy Industry are omitted, as is the item for Agricultural Investigations in Cooperation with the South Carolina Experiment Station in the Miscellaneous section. The funds provided by the first two items, and the amount allotted to the Bureau of Dairy Industry from the latter, have been transferred to and included in the amount for salaries and general expenses.

The increase in the authorization for expenditures for the construction of buildings from $17,600 to $30,000 is submitted so that $25,000 may be used for the construction of a nutrition laboratory at Beltsville, Maryland, the need for which is explained in note under the item Nutrition of Dairy Cows, and $5,000 for other construction work at the various dairy experiment stations should the need arise for such work. This is submitted in lieu of the previous general authority for the construction of additions to buildings at certain field stations, and the unlimited construction authority formerly applicable to the Woodward, Oklahoma, station.

Appropriation, 1931	$ 618,465
Woodward, Oklahoma, Field Station	12,300*
Dairy and Livestock Experiment Station, Tennessee	25,000*
Agricultural Investigations in Cooperation with South Carolina Experiment Station (Allotment)	21,350*
Brookhart Act adjustments	3,040
Total, 1931	$ 680,155
Budget, 1932	727,410
Increase	47,255

* Transfer to "Dairy Investigations" submitted in Budget for 1932:

It is proposed to discontinue the separate items of appropriation under Salaries and General Expenses, Bureau of Dairy Industry, for the Woodward, Oklahoma, and the Lewisburg, Tennessee, stations, as well as the item for cooperation with the South Carolina Experiment Station, in the miscellaneous section of the bill. The appropriations for the former and the allotment to the Bureau of Dairy Industry for the latter indicated above have been included in the amount recommended in 1932 for Dairy Investigations.

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Dairy Investigations:				
Dairy Manufacturing Investigations & Introduction	$ 52,460	$ 71,850	$ 75,650	$ 3,800
Dairy Herd Improvement Investigations	45,968	61,020	67,820	6,800
Dairy Cattle Breeding, Feeding & Management	149,745	152,650	168,155	15,505
Ice Cream Investigations	12,800	13,200	13,200	.....
Butter & By-Products Investigations	25,890	27,736	27,736	.....
Condensed Milk & Milk Powder Investigations	30,228	32,960	32,960	.....
Investigations in Bacteriology & Chemistry of Milk	21,375	20,810	20,810	.....
Nutrition of Dairy Cows	52,090	49,860	53,860	4,000)
Nutrition Laboratory	.....	.....	25,000	25,000)
Cheese Manufacturing Investigations	28,652	32,860	32,860	.....
Market-Milk Investigations	30,291	40,712	40,712	.....
Operation & Maintenance, Beltsville Farm	64,640	40,782	40,782	.....
Construction of Physiological Laboratory	.....	7,600	.....	-7,600
Purchase of Land, Beltsville,Md.	.....	11,000	.....	-11,000
Purchase of Land, Beltsville,Md.	.....	.....	15,750	15,750
Missouri Experiment Station	.....	10,000	10,000	.....
Ardmore, S.D.,Field Station	9,211	9,065	9,065	.....
Huntley,Mont.,Field Station	15,070	19,600	14,600	-5,000
Mandan,N.D., Field Station	14,069	19,800	19,800	.....
Woodward,Oklahoma,Field Station.	12,239	12,300	12,300	.....
Lewisburg,Tenn.,Expt. Station	49,981	25,000	25,000	.....
South Carolina Expt. Station	36,440	21,350	21,350	.....
Transfer from Dept. of Justice	8,945	.....	.....	.....
Total	$660,094	$680,155	$727,410	$47,255

While there is an apparent or net increase of $47,255 under this appropriation, there is an actual increase of $70,855 in working funds, due to the dropping of 1931 non-recurring items totalling $23,600 as follows: (1) $11,000 for the purchase of land at Beltsville, Maryland, (2) $7,600 for the construction of a physiological laboratory at Beltsville, Maryland, and (3) $5,000 for the construction of dairy barn at Huntley, Montana.

The actual increase of $70,855 is submitted for the following purposes:

(1) $3,800 for cooperative Swiss cheese introduction work in Wisconsin:

The Department is spending rather large sums of money each year in developing new or improved methods of manufacturing Swiss cheese through bacteriological, chemical, and technical investigationa. In order that the results of the investigational work conducted may yield the greatest good, the Department through cooperative arrangement with commercial cheese factories places trained men in different localities for the purpose of demonstrating the manufacture of cheese by methods developed in the laboratories. This work is now being conducted in cheese factories in the States of Ohio and New York, and it is now proposed to begin similar work in cheese factories in the State of Wisconsin. In the factories where the Bureau methods have been adopted the average quality of the cheese is much higher than it was before these new methods were applied. It is the object of this work, therefore, to assure a higher per cent of Fancy cheese in order to make the domestic business more profitable. At present about $15,000,000 worth of Swiss cheese is imported annually.

The work will be conducted in cooperation with the University of Wisconsin and that organization will defray the traveling and other expenses of the Department representative.

(2) $6,800 for dairy herd improvement investigations:

(a) There are now approximately one-half million dairy cows on test in dairy herd improvement associations in the United States. During the past year about 80 per cent or 400,000 of the yearly production records of these cows were received in the Department. These 400,000 records were checked, coded, and tabulated and the results were interpreted and analyzed, and the conclusions written up in the form of bulletins, leaflets, circulars, press notices, and the like. These publications serve as a guide to the dairy farmers in placing their business on a more scientific and profitable basis. The records obtained also provide a basis for increased production per cow through scientific methods of culling, feeding, breeding, and management. The 500,000 cows on test in dairy herd improvement associations are producing 2,500 pounds more milk and 100 pounds more butterfat per cow than the average dairy cow of the country. This increase in milk and butterfat yields an annual profit of about $50 per cow. This work is fundamental to the

future success of the dairy industry and it is imperative that the Department be in position to tabulate and analyze all of the data contained in the records which it receives. The work the Department is doing along this line has materially stimulated interest in dairy herd improvement association work and the number of cows on test is increasing each year. In order to keep pace with the work it is necessary that the facilities of the Department be enlarged. The increase recommended will be used for the employment of additional clerical personnel in order properly and expeditiously to handle the records and to provide additional funds for travel and the procurement of needed equipment.

(b) The plan of the Department will be:

To make thorough studies of the records of the cows on test for production and to use the results of these studies to bring about improvement not only in the dairy herds on test but in all dairy herds. In this work the Department determines the effect of culling, the effect of feeding silage, legumes, and concentrates, in varying quantities, according to production, size of cow, and season of freshening. Dairy sires are proved from the records and their true breeding value is measured so far as it can be determined from the comparative records of the daughters of each sire and the records of the dams of the daughters.

(c) Cooperation:

This work is conducted in cooperation with the State colleges of agriculture.

(d) Present work:

While the dairy herd improvement associations (formerly called cow testing associations) began work 24 years ago the investigational work with the records from these associations was started in 1916. At first this investigational work was carried on in a small way but in late years it has developed rapidly. In 1916 there were 346 dairy herd improvement associations and 142,499 cows on test, while at present there are 1,143 associations and 507,549 cows on test. The greatest development in the investigational work, howeve has occurred since 1926. Prior to that time it was possible to tabulate and analyze only a small proportion of the records received from dairy herd improvement associations because of the antiquated methods then employed. In 1926 tabulating machine equipment was installed and it is now possible to tabulate all the records of all the dairy herd improvement associations in the United States. Some fifty or more topics are being studied and a large number of publications have been issued.

(3) $15,505 for fertility and conformation studies:

(a) During the current fiscal year an item of $7,600 was provided for the construction of a physiological laboratory at the Beltsville, Maryland, dairy experiment station, to provide some of the necessary facilities for investigational work on the relation of conformation and anatomy to milk producing capacity, the physiology of milk secretion, and the causes of and remedies for certain types of sterility in both males and females. Investigations along these important lines have been in progress on a more or less restricted scale for several years, and many discoveries of fundamental importance bearing upon them have been made. In the study of the relation of conformation and anatomy to producing capacity a number of commonly accepted ideas have been shown to be without foundation. Definite relationship between certain body measurements and size of internal organs have been shown. Extreme variation in the anatomy of cows of similar size, shape, and production have been recorded. The increase recommended is to provide the necessary laboratory equipment for the building which is now under construction. Such equipment will include an incinerator for the disposal of dead animals after autopsy, offal of slaughtered animals, etc., refrigerating equipment, laboratory equipment, special apparatus for physiological work, and the like. It will also provide a fund of $1,000 for the purchase of about 20 heifers for a series of udder dissections. While these animals will cost approximately $50 per head, about $35 per head, or $700, should be returned to the Treasury as receipts from the sales of the carcasses.

(b) The plan of the Department will be:

To continue the study of the relation between the external form and the internal anatomy, and between both external form and internal anatomy and producing capacity. To continue the comparative study of the udder through all its stages of development and activity, its capacity and its gross and microscopic anatomy in relation to its producing capacity. To continue the work on fertility of males and females. To continue some of the problems in physiology of milk secretion. To add new research problems on each of these lines of work.

(c) Cooperation:

The Bureau is now cooperating with 18 State experiment stations in the study of the relation of conformation and anatomy to producing capacity.

(d) Present work:

The study of the relation between the external form and internal anatomy, and between both external form and internal anatomy and producing capacity involves the measurement of conformation and the slaughter and anatomical study of cows that have served their purpose as breeders and demonstrated their producing capacity and

are no longer useful in the herd. At the time of slaughter all the organs of the body are removed and weighed and some are measured. Detailed measurements of the thoracic cavity of the dressed carcass are also made. This study does not affect the value of the carcass which is sold. The purpose of this study is to reveal the points of conformation or anatomy which are indicative of milk producing capacity and to establish a scientific basis for the judging of dairy cattle.

The udders of all females in the herd at Beltsville are studied comparatively at regular and frequent intervals from the standpoint of development and activity, and their relative capacity, and gross and microscopic anatomy and the physical characteristics of the udder tissue are determined after death.

Many specific problems bearing on the physiology of milk secretion are being conducted. The comparison between the conformation, anatomy, skeletal structure and udder development of beef and dairy cows has been commenced but more work will probably be done along this line.

The study of the fertility of bulls and of cows is a part of the regular program now being followed. Methods of prolonging the duration of breeding activity in bulls are being developed and means of correcting and preventing breeding difficulties in both males and females are constantly sought.

(4) <u>$29,000 for nutrition of dairy cows</u>:

<u>$25,000 is submitted for commencing the construction of a building at the Beltsville, Maryland, dairy experiment station</u>, to house the laboratories engaged in nutrition work.

This project was started in a small way in 1915, and laboratory facilities were provided in the building which originally was intended solely for office and milk room purposes. With the development which has taken place in the nutrition work, the present laboratory facilities have become entirely inadequate although a very large part of the office building is now utilized for laboratories. In addition, a large colony of white rats is being housed in a building which is urgently needed for dairy cows for special investigational purposes. While it is estimated that the completed building will cost in the neighborhood of $60,000, the estimate submitted represents the cost of work which may reasonably be performed in one fiscal year on a day labor basis.

$4,000 is submitted for the purpose of providing more adequately for the conduct of these investigations. The work has been considerably handicapped in the past because of insufficient funds. The lack of a sufficient number of animals for feeding experiments has made it impossible for the laboratory to operate at maximum efficiency. The herd has become depleted through disease (due to the character of the work performed) and an exceptionally high ratio of bull calves. At present feeding experiments to determine the optimum level of protein for high milk production and the

relative efficiency of mono and diabasic phosphate as a source of calcium are practically at a standstill because the necessary animals for use in the work are not available.

Present work:

The work of this project is conducted under three general subjects: (a) Protein metabolism in relation to maintenance, growth, and milk secretion; (b) determination of the rations, which can be recommended as practical propositions, and which will maintain high producing cows in good health and at their optimum level of production and reproduction capacity from lactation to lactation through their normal life, and to discover the nature of the pathological conditions which are the result of faulty feeding of dairy cows and to reveal their true cause when they occur in actual practice; and (c) investigations of the importance of vitamins in the rations of dairy cows, including the application to dairy cow nutrition of results obtained in experiments with rats. The object of these activities is the accumulation of knowledge on the mechanism by which the constituents of the feed are converted into milk constituents and combined in the proper relation to insure stability; the proportion and character of the feed constituents which must be furnished to provide a sufficient supply of each without an excess of any; the availability of minerals necessary for a maximum milk production and similar problems which have a bearing on the formulation of the most efficient and economical ration for dairy cows, with the idea of bringing about more efficient methods of using concentrates in the ration of dairy cows.

(5) $15,750 for the purchase of additional land at Beltsville, Maryland:

Two tracts of land involving approximately 180 acres were leased by the Department in 1929 in order to provide the pastures necessary for the dairy herd at the Beltsville, Maryland, dairy experiment station, and to make additional land available for crop production purposes. One of these tracts containing 80 acres was recently purchased under authority of the Agricultural Appropriation Act for 1931, and it is proposed to purchase the other tract, containing about 100 acres during the fiscal year 1932. 396 acres of land at Beltsville are now used for the dairy work, of which 129 acres are utilized for the isolation of those animals reacting positively to contagious abortion test. Of the remaining 267 acres, approximately 15 are used for buildings, leaving only 252 acres for pastures and for crop production purposes. Investigational work to determine the feeding value of different types of silage and the effect of different methods of pasturing on the carrying capacity of pastures and on the milk and butterfat production of dairy cows has been materially limited because sufficient suitable land has not been available, as has the production of certain types of feed which may be raised more cheaply than they can be purchased.

Activities under Appropriation for Dairy Investigations.

The work now being conducted under this appropriation involves generally scientific research in the production, manufacture, and utilization of dairy products; the manufacture and utilization of dairy by-products; milk sanitation investigations, and studies of the efficiency of milk plant operation. These investigations are conducted under the following projects:

(a) Tabulation and analysis of dairy sire records, and the proving of dairy bulls through comparison of the records of the daughters of each bull with the records of the dams of the daughters. The objective of this work is to provide bulls of known merit for all dairy herds in the country;

(b) Studies of feed and production records of 500,000 cows on test in dairy herd improvement associations to obtain fundamental data for the selection and feeding of these cows intelligently according to their known production;

(c) Research to determine the need for new and improved processes of manufacture to provide suitable and profitable outlets for creamery and cheese factory by-products, to determine the factors affecting the quality of butter, cheese and other products of creameries and factories, and to introduce into creameries and factories new and improved methods of manufacture. The work also involves the factory production of dairy products and by-products according to methods developed through laboratory experiments;

(d) General breeding investigations at dairy experiment stations and in cooperation with State Experiment Stations. These experiments are actual comparisons of different methods of mating, such as outbreeding, line-breeding, and in-breeding, to determine which method will insure greatest uniformity in the transmission of high milk and butter fat producing capacity. From this work has come the theory of using, for generation after generation, sires that are homozygous for a high level of production as shown by the performance of their daughters as compared with the dams of the daughters. The use of sires of this quality in successive generations will result in the breeding of strains that will be pure in their inheritance for a high level of production;

(e) Biometrical studies of the growth of dairy cattle, their resistance to sterility and abortion, and of the production records of the various breed associations for information pertaining to correction factors for age, influence of development on subsequent lactation periods, and other information having a bearing on the laws governing the inheritance of milk and butterfat producing capacity;

(f) Investigations on the relation of conformation of dairy cattle to their producing ability to obtain, if possible, an accurate and scientific basis for judging the producing ability in dairy cows;

(g) Fertility investigations of the effect of certain dietary regimes in the correction and prevention of certain forms of sterility, and the effect of consistent exercise on the fertility of males and females, particularly on the recovery from lack of tone in the

reproductive organs of females;

(h) Feeding and management investigations to determine the influence of various feed stuffs on growth and milk production, the comparative values of various roughages when cut at different stages of maturity and when made into hay or silage, the effect of fertilization and rotational grazing on the values of pasture for milk production, and the effect of various methods of handling, housing, milking feeding, exercising, and pasturing on the economy and level of milk production.

(i) Fundamental investigations of the chemistry and physics of milk and of the bacteria commonly found in milk;

(j) Investigations of the process by which proteins of the feed are converted into proteins of the milk, the mineral requirements for high milk production and the most satisfactory sources of minerals, and the relation of vitamins of the feed to nutrition and milk production;

(k) Investigations of the chemical and physical changes which take place when milk is concentrated and sterilized, the causes of deterioration of concentrated milk products and the utilization of concentrated milk products in the baking, confectionary, and other industries;

(l) Investigations of the physical and chemical factors involved in the production of desirable flavor and texture in ice cream;

(m) Investigations of the biological and chemical factors in the production of the characteristic flavor and physical properties of various domestic and foreign varieties of cheese;

(n) Investigations for controlling the quality in butter and the more efficient utilization of skimmilk, buttermilk, and whey; and

(o) Research in sanitary and economical methods of producing, transporting, processing, and distributing market milk and cream which is to be utilized in its fluid state, including investigations in the production and farm handling of market milk under experimental as well as practical conditions on dairy farms, and a study of community milk improvement through milk-control and extension agencies on the area plan; investigations of the construction, equipment, and economical operation of milk plants for the processing and preparation for the market of fluid milk and cream; and investigations in the laboratory and at commercial dairy farms to ascertain factors affecting the marketability of milk and cream and to devise remedial measures.

----------0----------

Note - Also See Miscellaneous Section for "South Carolina Experiment Station."

BUREAU OF PLANT INDUSTRY

(a) ADMINISTRATIVE and MISCELLANEOUS

Appropriation, 1931	$ 207,000
Brookhart Act adjustments	3,266
Total, 1931	210,266
Budget, 1932	211,360
Increase	1,094

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
General administrative	$206,062	$210,266	$211,360	---	$1,094

The increase of $1,094 is for Under-average Salary Grade Ajustments.

Activities under Appropriation for General Administrative Expenses

The direction of the research, service and regulatory work of the Bureau of Plant Industry, the administration of its fiscal affairs, the general supervision of personnel, the administrative review and preparation of its research and other publications for printing, and bibliographical and related library work, and certain service activities such as the photographic laboratory, are carried on in these units, in part financed from the appropriations served.

(b) MYCOLOGY and DISEASE SURVEY

Appropriation, 1931	59,500
Brookhart Act adjustments	460
Total, 1931	59,960
Budget, 1932	60,340
Increase	380

Project Statement

Project Mycology and Disease Survey:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Mycology	$22,046	$22,628	$22,748	---	$ 120
Disease Survey	28,831	31,132	31,332	---	200
Mushroom diseases	5,796	6,200	6,260	---	60
Totals	$56,673	$59,960	$60,340	---	$ 380

The increase of $380 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Mycology and Disease Survey

In this division specimens of all plant parasites and other fungi having relation to injury or destruction of economic plants and plant products are collected, identified, and preserved for technical study and reference purposes. An information service on diseases of plants is provided by surveys to determine the geographic distribution, prevalence, and rate of spread of plant diseases in the United States and losses caused by disease, as well as the appearance of new or dangerous diseases and epidemics or unusual outbreaks of disease.

Specific lines of work of recent interest include (a) the study of a species of Sphaceloma recently found to attack the Lima bean in Porto Rico and Cuba, (b) the control of the Mycogone disease of mushrooms, and (c) special cooperative surveys on tobacco diseases, flag smut of wheat, and strawberry mosaic.

(c) CITRUS CANKER ERADICATION

Appropriation, 1931	$45,000
Brookhart Act adjustments	60
Total, 1931	45,060
Budget, 1932	40,100
Decrease	4,960

Project	Project Statement Expended 1930	Estimated 1931	Estimated 1932	Increase or Decrease W.F.	U.A.S.
Citrus canker eradication . .	$44,974	$45,060	$40,100	-5,060	+$ 100

The decrease of $4,960 represents the following:

$100 increase Under-average Salary Grade Adjustments.

$5,060 decrease in working funds.

Activities under Appropriation for Citrus Canker Eradication

In cooperation with Florida, Alabama, Mississippi, Louisiana and Texas, the Bureau conducts a campaign for the eradication of citrus canker, a bacterial disease of citrus fruits and trees, by the thorough inspection of nurseries and citrus groves, formalin treatment of infected soil, protective spraying of groves exposed to infection, and destruction of diseased trees. As a result of the vigorous campaign, the disease has been practically eliminated from the commercially important areas, but scattered infections still occur sporadically.

Each State is now maintaining a close reinspection of all citrus properties and this will be continued for several years because of the extreme infectiousness of the disease. Louisiana is still reporting scattered infections in dooryard plantings and, in July, 1930, a single tree was found infected in Texas.

(d) FOREST PATHOLOGY

Explanation of change in language: The insertion of the following language just before the amount in this item is recommended in order to indicate the amount of the funds in this item which are applicable to the McNary-McSweeney Act projects:

"and including $125,000 for investigations of diseases of forest trees and forest products, under section 3 of the Act approved May 22, 1928 (U.S.C., Supp.111, title 16, sec. 581b)".

Appropriation, 1931	$210,000
Brookhart Act adjustments	1,052
Total, 1931	211,052
Budget, 1932	225,240
Increase	14,188

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase
Forest Pathology				
Tree Disease Emergencies	$30,500	$ 30,370	$ 32,038	$ 1,668 (1)
Diseases of shade trees, shrubs and chestnut orchards	56,081	68,202	68,202	- - -
Diseases of forest trees and forest products.	102,080	112,480	125,000	12,520 (2)
Totals.....	$188,661	$211,052	$225,240	$14,188

The increase of $14,188 is submitted for the following purpose:

(1) $1,668 for preliminary investigation of the Dutch elm disease.

(a) The Dutch elm disease was first found in Holland twelve years ago and was first found in the United States at Cleveland, Ohio, in June, 1930. The disease now occurs throughout northern continental Europe and in the last two years has appeared in Great Britain, and all species of elm now cultivated in western Europe appear to be susceptible, including our Ulmus americana. The elm street and ornamental trees are o of stupendous value to this country and serious loss from this disease is probable.

(b) The plan of the Department will be:

To assist State authorities in identification work and scouting for the disease in Ohio and other regions.

(c) Cooperation:

This work will be carried on to as great an extent as is practicable in cooperation with the State agencies of Ohio and other States where there is possibility of the occurrence of the disease.

(d) Present work:

During the current fiscal year identification work and scouting is being undertaken in a very small way with the Ohio Agricultural Experiment Station.

(2) $12,520 for pathological investigations in cooperation with the Forest Service:

(a) Diseases of hardwoods and heart rots are problems on which the Forest Service particularly has requested the cooperation of the Bureau of Plant Industry. In parts of the Northeast attempts at forest improvement by thinning and selective logging have been largely nullified by the heavy mortality in the yellow and paper birches that have been left standing. Heart rot of balsam fir is found to be causing heavy losses in the growing timber in the extreme North on which the paper industry is partly dependent, and the butt rots that occur in sprout hardwoods in this region further increase the difficulty in managing second growth stands.

In the Appalachian and Gulf States regions the cull from decay in oak and other important hardwood species is excessive (15 to 20 per cent in the stands on which data are available). It has been found that fire scars are important entry ports for the decay fungi of the oaks, and that in some places fire control will largely prevent heart rot, but the studies need to be much extended to determine in which forest types this statement will hold, and to what ages. In the swamp hardwoods the roots are exposed and therefore pecularly subject to wounds by cattle and during logging operations, at which decay can enter. In addition to these decays, heavy and unexplained mortality has occurred in the swamp hardwoods over large areas during the last decade. Three-fourths of the present hardwood cut, and the great bulk of our future supply, are in the South and foresters, in order to develop proper silviculture in hardwoods, must have information on the pathological factors.

(b) The plan of the Department will be:

In the Northeast to determine the factors responsible for the death of the birches and for the heart rots, with a view to their modification or to a change in the cutting system. In the Gulf States, to make a general examination of the diseases of hardwoods, particularly in the overflow lands, in order to supply the information needed by the Forest Service in the survey of these hardwoods that it has begun on a 1931 appropriation; in all of the regions named, to study the different kinds of heart rots, particularly with a view to determining to what extent they enter at scars made by fires, animals, and loggers, and can be controlled by control of fire or by changes in grazing or logging practices.

(c) Cooperation:

The work will be headquartered at the Forest Experiment Stations of the Forest Service at Amherst, Mass., Asheville, N.C., and New Orleans, La., respectively. In the studies of birch mortality there will be active cooperation with the Bureau of Entomology as well as with the Forest Service.

(d) Present work:

Very little has been done on diseases of hardwoods in the Northeastern States. In balsam, a Canadian pathologist began an investigation, but has terminated it before he went far enough to make his data of practical value to timber owners on our side of the international boundary. Work on the heart rots of the Appalachain mountain hardwoods has been prosecuted with part of the time of one man, and the preliminary work brought to a stage which demands additional force for its efficient prosecution. No pathological work has ever been attempted by any agency in the swamp hardwood forests.

Activities under Appropriation for Forest Pathology

The diseases of forest and shade trees and shrubs, including white pine blister rust, chestnut blight, heart-rot of Douglas fir, European larch canker, and many other diseases, are investigated with a view to determining methods of control. These studies include investigations of the native diseases that attack leaves, branches, bark, or roots, or decay of woods of standing trees in the forest, as well as the discolorations and decays of logs, timbers, lumber, pulp, paper, and of wood in construction.

No field stations are maintained but cooperative activities are carried on in a number of States.

Specific lines of work now under way include (a) a scouting program to determine occurrence of European larch canker, (b) the securing of desirable strains of blight resistant chestnuts from the Orient, and (c) the prevention of sap stains and molds in domestic and export lumber.

(e) BLISTER RUST CONTROL

Appropriation, 1931	$454,700
Brookhart Act adjustments	1,300
Total, 1931	456,000
Budget, 1932.	456,300
Increase	300

Project Statement

Project Blister Rust Control:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Eastern control program .	$202,895	$216,875	$216,875	---	---
Western control program .	$215,965	239,125	239,425	---	300
Totals.	$418,860	$456,000	$456,300		$300

The increase of $300 is for Under-average Salary Grade Adjustments.

Activities under appropriation for Blister Rust Control

Campaigns are conducted for the suppression and control of white pine blister rust by cooperating with State organizations, counties, towns, and individual landowners in the eradication of Ribes (currants and gooseberries) which serve as carriers of the disease, as well as in inspection of nursery stock likely to carry the disease to uninfected regions, and other control methods. The Eastern and Lake States cooperating are Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin. The Western States cooperating are California, Idaho, Montana, Oregon, and Washington.

Specific lines of work of particular interest at present include (a) field tests of chemicals to determine the most effective killing agents for Ribes, (b) development of protection zones around commercial nurseries growing white pine, and (c) cooperation with the Forest Service in applying control measures in National Forests.

(f) PLANT NUTRITION

Appropriation, 1931	$ 17,990
Brookhart Act adjustments	60
Total, 1931	18,050
Budget, 1932	18,250
Increase	200

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Plant nutrition investigations .	$17,803	$18,050	$18,250	---	$ 200

The increase of $200 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Plant Nutrition

Plant nutrition investigations deal with the effect of length of day on growth, development and composition of plants including effects of daily duration, intensity and color or composition of the light; the influence of certain crops on other crops following in the rotation; and the plant food elements and the relative plant-food requirements of crops commonly grown in rotation. The work is carried on with the same personnel as Tobacco Investigations.

(g) COTTON PRODUCTION AND DISEASES

Appropriation, 1931	$200,000
Brookhart Act adjustments	997
Total, 1931	200,997
Budget, 1932	233,140
Increase	32,143

Project Statement

Project Cotton Production and Diseases:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Acclimatization, breeding and cultural improvement of cotton.	$79,164	$130,493	$150,636	$20,143(1)
Egyptian cotton breeding	26,450	24,800	24,800	---
Cotton diseases	35,168	45,704	57,704	12,000(2)
Totals.	$140,782	$200,997	$233,140	$32,143

The increase of $32,143 is submitted for the following purposes:

(1) $20,143 for One-Variety Cotton Communities in the East:

(a) Cotton is the principal export commodity of the United States, with a total value of approximately $1,500,000,000, but the proportion of American cotton used in other countries has declined notably in recent years, on account of increasing competition of other producing countries where improved methods are being utilized more effectively than in the United States.

Deterioration of the quality of the cotton fiber produced in the United States is recognized as one of the principal causes of the present situation in Southern agriculture, and the reasons why such a deterioration of quality has taken place in recent decades have been determined in the mixing of different varieties at the public gins and the general planting of mongrelized stocks of seed. The one-variety system of production has been developed and demonstrated in the southwestern States, and is recognized as affording the only prospect of a general utilization of superior varieties of cotton by meeting the fundamental requirement of adequate supplies of pure seed, which are necessary for a regular production of commercial quantities of uniform fiber. In order to establish the one-variety improvements of production in the eastern Cotton Belt, methods employed in the Southwestern valleys need to be modified and adapted to the local conditions. The underlying factors and requirements for organizing such communities in the different regions of the cotton belt need to be determined and applied in order to develop the most effective methods of establishing the community system, and thus opening the way to many other improvements, through the production and marketing of a uniform standardized crop.

(b) The plan of the Department will be:

In cooperation with State and local leaders, to develop and maintain adequate stocks of pure seed for use of local cotton communities, and in such communities to conduct cooperative investigations, as a means of determining the most effective methods of establishing the one-variety community production of cotton in the Southeastern Cotton Belt. Although the communities operate entirely on their own responsibility and initiative their special needs of information must be recognized, at least in the early stages of this development. Unless assistance can be given in working out the more technical problems, it must be expected that failures may often result from confusion and discouragement, as shown by experience in some of the Southwestern valleys. At the same time, in furnishing the necessary assistance to the communities valuable knowledge is gained regarding the requirements and advantages of community production.

(c) Cooperation:

This project is in close cooperation with the Bureau of Agricultural Economics of the U.S. Department of Agriculture, State Agricultural Colleges and Experiment Stations of the Southeast, and with local organizations of farmers and other cotton interests, including the Agricultural Society of South Carolina which has furnished land and other facilities for a field station on James Island, South Carolina, from which much of the work will be directed.

(d) Present work:

This line of investigation in the Southeastern States was inaugurated in 1930 on the basis of an allotment of $15,000 provided in our appropriation for this purpose.

(2) $12,000 for Root Rot of Cotton:

(a) Investigations of this very destructive disease are being conducted in Texas and neighboring States, as well as in Arizona and California, in cooperation with the Bureau of Soils and Chemistry of this Department and with the State workers in the States concerned. Root rot injuries in Texas alone have been estimated from 300,000 to 600,000 bales annually, or from $20,000,000 to $50,000,000.

Marked progress has been made recently in determining the habits of the fungus that causes this disease and the work has now reached the stage where an increased appropriation is necessary for further investigation and testing of cultural methods of controlling the disease, by deep tillage or other experiments, which the experiments indicate may be of value, and possibly may lead to practical solution of the root rot problem.

(b) The plan of the Department will be:

To go forward in Texas and neighboring States, as well as in Arizona and California, with the investigations of this disease already under way, which includes testing in the field of several new possibilities of control of the disease.

(c) Cooperation:

This work is in close cooperation with the offices of Western Irrigation Agriculture, and Horticultural Crops and Diseases in the Bureau of Plant Industry, and with the Bureau of Chemistry and Soils of this Department, State workers of Texas and other States where root-rot damages occur, as well as with cotton growers and other local interests, especially in Texas. The Greenville (Texas) Chamber of Agriculture, Industry and Commerce, has furnished land and other experimental facilities for the U. S. Cotton Breeding Field Station near Greenville, from which station the work in Texas and neighboring States is conducted. For this work an item of $10,000 increase has been included in the 1932 Budget for the Bureau of Chemistry and Soils under the subappropriation for Soil Fertility.

(d) Present Work:

The present studies of the root-rot disease of cotton were inaugurated in 1929 on the basis of a special appropriation granted for that purpose to extend previous work determining the habits and life-history of the fungus. The allotment of $42,533 is available for this work in the fiscal year 1931.

Activities under Appropriation for Cotton Production and Diseases

Work is carried on in the Southern and Southwestern United States on the acclimatization and adaptation of cotton introduced from tropical regions; the breeding of superior varieties of cotton, the improvement in methods of cotton culture under boll-weevil conditions, and the investigation and control of cotton diseases such as root rot, wilt and other disorders. The work also includes selection and hybridization of strains of Egyptian cotton through the ordinary methods of plant breeding, testing promising strains on a field basis, and the making available to farmers of the variety which yields best and which produces fiber giving best results in spinning tests.

Specific lines of work of particular interest recently include (a) the growing of Sea Island cotton to test the possibility of re-establishing the crop in the United States, (b) the development of one-variety communities, and (c) testing Pima and other new long-staple cottons in the area to be brought under irrigation from the Colorado River.

(h) RUBBER, FIBER and OTHER TROPICAL PLANTS

Appropriation, 1931	$140,000
Brookhart Act adjustments	463
Total, 1931	140,463
Budget, 1932	141,100
Increase	637

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Rubber, Fiber and Other Tropical Plants:					
Acclimatization and adaptation of crops from tropical regions . . .	$48,538	$48,066	$48,366	- - -	$ 300
Rubber production investigations .	76,967	58,239	58,576	- - -	337
Fiber investigations	31,825	34,158	34,158	- - -	---
Totals	$ 157,330	$ 140,463	$141,100	- - -	$ 637

The increase of $637 is for Under-average Salary Adjustments.

Activities under Appropriation for Rubber, Fiber and Other Tropical Plants.

The work is directed chiefly toward acclimatization and adaptation in the Southern and Southwestern United States of varieties of corn and other crop plants of tropical origin; the investigation of rubber producing possibilities of plants that may be grown in the United States, its possessions and elsewhere in tropical America, together with development of a system of production that may permit competition with production in the East Indies. The investigation of hemp and flax fiber production in the United States and of hard fibers such as abaca (Manila hemp), maguey, henequen and sisal in the Philippine Islands, Porto Rico, and the Canal Zone is carried on through experiments in these regions.

Field experiments are carried on at the stations of the Office of Cotton Crops and Diseases and cooperative experiments are located at the State agricultural experiment stations.

Specific lines of work of particular interest recently include (a) the growing successfully in southern Florida of the Hevea rubber tree and (b) cooperation with agencies in the Philippines in encouraging use of improved methods in the fiber and cordage industry.

(i) DRUG and RELATED PLANTS

Appropriation, 1931	$ 37,700
Brookhart Act adjustments. . . .	420
Total, 1931.	38,120
Budget, 1932	38,340
Increase	220

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Drug and related plants . .	$34,525	$38,120	$38,340	---	$ 220

The increase of $220 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Drug and Related Plants

Scientific studies are made on the growing of drug, essential oil, and related crops, and on the preparation of commercial products therefrom, to determine the possibility of commercial growing of these plants as farm crops.

Cooperative experiments are located at the Oregon Agricultural Experiment Station.

Specific lines of work of particular interest recently include (a) the growing of more than 100 acres of safflower and small areas of hemp for drying oil and (b) the determination of the toxic constituents of plants poisonous to livestock.

(j) NEMATOLOGY

Appropriation, 1931	$ 57,900
Brookhart Act adjustments. . . .	360
Total, 1931.	58,260
Budget, 1932	58,780
Increase	520

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Investigations in nematology and agricultural technology	$57,515	$58,260	$58,780	---	$ 520

The increase of $520 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Nematology

These investigations deal primarily with the minute eelworms or nemas, certain species of which infest important crop plants and seriously injure them, whereas other species have been found to be beneficial, destroying insects or other species of injurious nemas.

Field laboratories are maintained at Salt Lake City, Utah, and at East Falls Church, Virginia.

Specific lines of work of particular interest recently include (a) what appears to be a widespread and troublesome nematode disease of strawberries in the Southern States and (2) nematode attack of sweet potatoes in the Eastern regions, the practical importance of which connot be determined until further investigation has been made.

(k) SEED LABORATORY

Appropriation, 1931	$ 77,800
Brookhart Act adjustments. . . .	420
Total, 1931.	78,220
Budget, 1932	78,740
Increase	520

Project Statement

Project Seed Laboratory:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Seed testing	$47,875	$46,896	$47,216	----	$ 320
Federal Seed Act . .	25,451	31,324	31,524	----	200
Total	$73,326	$78,220	$78,740	----	$ 520

The increase of $520 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Seed Laboratory.

Advisory service is maintained for farmers, seedsmen, and others interested in seed quality, based upon seed samples tested to determine the proportion of pure seeds present, the kind and proportion of weed seeds, and the germination of the pure seed. The Federal Seed Act is enforced, requiring the sampling of all shipments of field seeds, the coloring of red clover or alfalfa seed of foreign origin, and regardless of origin, establishing penalties on misbranding and adulteration of seed in interstate commerce.

Cooperative seed testing laboratories are maintained at Sacramento, California; Lafayette, Indiana; Columbia, Missouri; and Corvallis, Oregon.

Specific lines of work of particular interest recently include (a) the determination of region of production of the various strains of bent grass seed, (b) prohibiting entry of one million pounds of imported seed as not fit out of $27\frac{1}{4}$ million pounds offered for entry; of the amount rejected, approximately one-half was red clover.

(1) CEREAL CROPS and DISEASES

Appropriation, 1931	$535,000
Allotment, Special Corn	
Borer Appropriation	25,000*
Brookhart Act adjustments	3,900
Total, 1931	563,900
Budget, 1932	574,060
Increase	10,160

*Transfer to this appropriation proposed in Budget, 1932

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Cereal Crops and Diseases:				
Cereal agronomy:				
Wheat investigations	$88,288	$143,590	$143,590	---
Oat investigations	27,050	27,850	27,850	---
Barley investigations . . .	26,315	27,175	27,175	---
Rice investigations	25,742	46,480	46,480	---
Grain sorghum investigations	13,785	14,445	14,445	---
Flax investigations.	9,790	10,140	10,140	---
Corn investigations	55,150	56,660	56,660	---
Total, cereal agronomy .	$246,120	$326,340	$326,340	---
Cereal pathology:				
Sac and imperfect fungi investigations	73,470	90,925	101,085	$10,160
Bacterial and virus disease investigations	27,340	27,690	27,690	---
Rust investigations	50,207	51,145	51,145	---
Smut investigations	42,300	42,800	42,800	---
Total, cereal pathology	$193,317	$212,560	$222,720	$10,160
Corn Borer - cultural and breeding investigations (corn):	24,427	25,000	25,000	---
Total, Cereal Crops & Diseases	$463,864	$563,900	$574,060	10,160

The increase of $10,160 is for the investigation of wheat foot rots in the Oklahoma-Texas-Kansas area:

(a) Foot rots of wheat have been causing heavy losses in northern Oklahoma, northern Texas, and southern and western Kansas during the past several years. In 1929 losses from this group of wheat diseases were heavy in all three sections, and again in 1930 heavy losses occurred in the Texas

Panhandle. Indications are that these diseases are soil-borne and that they become increasingly severe where wheat is grown more or less continuously with little or no rotation with other crops. In southwestern Kansas and the Oklahoma and Texas Panhandles particularly, much new land has been broken out and has been continuously cropped to wheat for the past few years. Such practices seem to be particularly favorable for these diseases. Adequate control methods are not known and should be developed in order to prevent heavy losses bound to occur in increasing amounts if not checked by effective control measures.

(b) The plan of the Department will be:

To determine (a) the causes of these diseases and the soil and climatic factors influencing their development; (b) the effect of different rotations on the occurrence of the diseases; (c) the effect of different tillage and cultural practices and of different dates of seeding; and (d) the resistance of wheat varieties to the diseases, and breeding of adapted disease-resistant types.

(c) Cooperation:

The laboratory and field experimentation will be done in cooperation with the Texas, Oklahoma, and Kansas Experiment Stations, which have tentatively agreed to supply laboratory space and field facilities, each of them having substations in some part of the affected area.

(d) Present work:

Work is now under way on wheat foot rots in eastern Kansas, Colorado, Montana, and Oregon, two men working in the area east of the Rocky Mountains and one in the Pacific Northwest. Progress is being made in the working out of rotation and cultural practices for control. The area is so great and the situation is so different in Texas, Oklahoma, and southwestern Kansas, that present personnel cannot cover the problem in this territory.

Activities under Appropriation for Cereal Crops and Diseases.

This work includes studies of cultural practices with cereal crops and investigation of their possible improvement, comparison of yield and adaptability to different regions of different varieties of cereals, together with the breeding and selection of improved and better adapted varieties, and development of methods of control of the diseases of all cereal crops.

Cooperative experiments are carried on at most of the State Agricultural Experiment Stations, but no independent field stations are maintained.

Specific lines of work which have been of particular interest recently include (a) development of varieties of hard red spring wheat that are rust resistant and of superior yield, (b) the development of disease-resistant oat hybrids, (c) experiments to determine fertilizer requirements of rice and (d) experiments for control of barley scab.

(m) BARBERRY ERADICATION

Appropriation, 1931	$379,920
Brookhart Act adjustments	420
Total, 1931	380,340
Budget, 1932	377,600
Decrease	2,740

Project	Project Statement Expended 1930	Estimated 1931	Estimated 1932	Increase or Decrease W.F.	U.A.S.
Barberry eradication . .	$359,434	$380,340	$377,600	- 3,200	+460

The net decrease of $2,740 represents the following:

$460 increase for Under-average Salary Grade Adjustments.

$3,200 transferred to the appropriation "Salaries, Office of the Secretary" to cover salary of an employee detailed to the Solicitor's office.

Activities under Appropriation for Barberry Eradication

The north-central wheat producing States, Colorado, Illinois, Indiana Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming, are cooperating with the Bureau to eradicate the common barberry, an intermediate host of the wheat stem rust, throughout this area as a means of controlling epidemics of black stem rust of wheat and other small grains.

Specific lines of work of particular interest recently include (a) experiments on chemical methods of eradication and (b) determination of susceptibility or resistance of species, varieties and hybrids of Berberis, and (c) tracing local epidemics to nearby barberry bushes not discovered previous to the epidemic.

(n) TOBACCO

Appropriation, 1931	$80,310
Brookhart Act adjustments . . .	660
Total, 1931	80,970
Budget, 1932	91,620
Increase	10,650

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Tobacco investigations . . .	$69,502	$80,970	$91,620	$10,030(1,2)	$620

The increase of $10,650 is submitted for the following purpose:

$620 Under-average Salary Grade Adjustments.

$10,030 increase in working funds, as follows:

(1) $6,000 for South Carolina tobacco station:

(a) Tobacco production in eastern South Carolina exceeds 80,000,000 pounds annually and several adjoining counties in North Carolina commonly included in the "South Carolina Belt" which would be served by the research program produce 40,000,000 pounds additional. Granville wilt, with the exception of black shank, the most destructive tobacco disease we have, has recently appeared in three localities in eastern South Carolina. The seriousness of this disease is well known and intensive research and an active campaign of education will be required to bring it under control.

At present the export market is taking the greater portion of the South Carolina tobacco crop and there is need for improving production methods so as to increase the percentage of grades suitable for domestic manufacture of cigarettes in order to provide a broader and more stable market. Better selection of soil types and varieties of seed, proper use of fertilizer and more satisfactory cultural and handling practices will greatly increase the income from the tobacco crop.

There is considerable interest in culture of Turkish tobacco in eastern South Carolina but the possibilities in profitable culture of this type can only be determined by carefully planned tests as to soil types required and suitable methods of planting, cultivating, harvesting, curing and fermenting the crop. Production methods are quite different from those applied to flue cured tobacco. We import more than 30,000,000 pounds of Turkish tobacco having a value of about $25,000,000, including a duty of 35 cents per pound.

(b) The method of procedure will be:

To conduct comprehensive field experiments in order to develop and demonstrate satisfactory cropping systems for control of the wilt disease,

to determine the best types of soil for flue cured and Turkish tobacco and the most satisfactory tobacco varieties for local conditions, to improve fertilizer usage and to work out better methods of curing and handling, all with special reference to improvement in quality of the crop.

(c) Cooperation:

The work will be in cooperation with the State Experiment Station, which will provide necessary land, curing barns and other buildings and a portion of the labor required for carrying out the experiments.

(d) The Bureau is not conducting any tobacco work in the state at the present time.

(2) $4,030 for Tennessee Burley tobacco station:

(a) The Burley tobacco industry of east Tennessee is comparatively new and production is rapidly increasing. Little is known, however, as to the local types of soil suited to the crop and consequently there is lack of uniformity in the grade and quality of the leaf produced. There is almost no information as to the fertilizer requirements of the crop or the varieties of Burley best adapted to local conditions. The ordinary varieties of Burley are highly susceptible to the black root rot disease and present practice in growing tobacco in connection with a live stock industry, involving use of manure, lime and growing clover in the rotation, although otherwise sound, definitely favors development of the disease. In order to maintain this system of culture on a profitable basis it seems essential to develop strains of Burley which are highly resistant to root rot and otherwise adapted to local conditions. There are also some important problems in methods of curing.

Present production of Burley is about 300,000,000 pounds having a farm value of $70,000,000. Profitableness of the crop, however, depends largely on the percentage of the cigarette grades of leaf that can be produced. It has been demonstrated that under favorable conditions the east Tennessee district is capable of growing the finest grades of cigarette leaf and this region seems to be especially well adapted to the production of high quality tobacco.

(b) The method of procedure will be:

To conduct field experiments on the different soil types in order to determine the comparative quality of tobacco produced and to ascertain the fertilizer requirements of the crop on each of the desirable types of soil; to produce by breeding and selection improved, disease-resistant strains of Burley tobacco and conduct field demonstrations with these strains under different systems of cropping; to conduct tests in curing under practical conditions.

(c) Cooperation:

The work will be in cooperation with the State Experiment Station which will supply necessary land, curing barns and other buildings, together with a portion of the farm labor required in conducting the experiments.

(d) Present Work:

A limited amount of experimentation in fertilization of tobacco is being conducted at the State Experiment Station at Knoxville under an allotment of $2,000 for the fiscal year 1931. The work should be extended to cover the other problems mentioned above and should be transferred to a more central location in the Burley district to more readily reach the growers and to make available more representative soil types.

Activities under Appropriation for Tobacco

Tobacco investigations include all phases of growing, curing and handling tobacco, with the exception of tobacco insects and their control. The work consists of studies on tobacco disease and their control, laboratory research on causes of poor quality in leaf tobacco and field investigations in the improvement of methods of growing, curing, and handling the different types of leaf.

Cooperative experiments are carried on at the Agricultural Experiment Stations of tobacco-growing States, but no independent field stations are maintained.

The allotments for different types of tobacco studies for the fiscal year 1931 are as follows:

Cigar binder and filler production investigations Pennsylvania & Wisconsin	13,100	Maryland tobacco production investigations	3,600
Flue-cured tobacco investigations, N. Carolina and Georgia	18,060	Dark air-cured tobacco production investigations Virginia	3,432
Burley tobacco production investigations, Tennessee and W. Virginia	3,000	Cigar wrapper tobacco production investigations Mass., Conn. & Fla.	5,500

Specific lines of work which have been of particular interest recently include (a) studies on the plant viruses transmitted by aphids, (b) detailed specifications for fertilizers for flue cured tobacco, and (c) detailed study of nicotine content of two strains of Cuban tobacco.

(o) SUGAR PLANTS

Appropriation, 1931	$412,926
Brookhart Act adjustments	774
Total, 1931	413,700
Budget, 1932	413,700

Project Statement

Project Sugar Plants:	Expended 1930	Estimated 1931	Estimated 1932
Sugar cane	$114,739	$127,220	$127,220
Sugar beets	261,016	286,480	286,480
Total	375,755	413,700	413,700

Activities under Appropriation for Sugar Plants

The investigations on sugar cane and sugar beets include breeding for the production of types better adapted to conditions in the United States, comparative studies of cultural practices, and disease-control experiments.

Field stations and laboratories are maintained at the following points:

Riverside, California.	Cairo, Georgia.
Fort Collins, Colorado.	Twin Falls, Idaho.
Rocky Ford, Colorado.	Houma, Louisiana.
Canal Point, Florida.	Salt Lake City, Utah.

Specific lines of work which have been of particular interest recently include (a) collection of disease-resistant varieties of cane in New Guinea, (b) production of sugar-beet seed from overwintering stecklings in the field, and (c) in cooperation with the Bureau of Entomology the curly-top disease of sugar beets caused by the leaf-hopper is being intensively studied with a view to minimizing losses by modification of present practices, selection of resistant strains of sugar beets and breeding of new strains or varieties resistant to the disease.

(p) BOTANY

Appropriation, 1931	$53,800
Brookhart Act adjustments	480
Total, 1931	54,280
Budget, 1932	60,420
Increase	6,140

Project Statement

Project Botany:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Economic botany	$38,774	$40,847	$41,147	----	$300
Weed investigations	7,364	7,240	12,960	5,720	---
Blueberry investigations ...	6,956	6,193	6,313	----	120
Total	53,094	54,280	60,420	5,720	420

The increase of $6,140 is submitted for the following purpose:

$420 Under-average Salary Grade Adjustments.

$5,720 for investigations of troublesome weeds:

(a) Weed losses in the United States were recently estimated by the United States Chamber of Commerce to reach as much as three billion dollars annually. This tax on American agriculture has resulted in a widespread and increasing demand upon this Department for information regarding improved methods of eradicating or controlling especially troublesome weeds.

(b) The plan of the Department will be:

To undertake field experiments to determine the comparative effectiveness of different methods of controlling perennial peppergrass, locoweed, wild garlic and such other weeds as may be studied in connection with these. In cooperation with the Extension Service, information yielded by the field studies relative to improvements in control methods will be passed on to landowners.

(c) Cooperation:

Informal cooperation in this work is under way and will be continued with Federal agencies, such as the Forest Service and Bureau of Animal Industry, and with State agricultural experiment stations.

(d) Present work:

Preliminary field studies have been made of numerous troublesome weeds.

Activities under Appropriation for Botany

This work includes identification of cultivated as well as wild plants for various institutions and individuals, investigations of troublesome weeds through field studies, and the domestication and improvement of the blueberry.

Lines of work of especial interest recently include (a) development of a new method for handling blueberry plants that will probably require only one year instead of two in greenhouse before plants are set outdoors, and (b) preliminary field studies of such western weeds as foxtail barley, blueweed sunflower, and wild garlic.

(q) DRY LAND AGRICULTURE

Appropriation, 1931	$363,900
Brookhart Act adjustments	2,040
Total, 1931	365,940
Budget, 1932	338,820
Decrease	27,120

Project Statement

Project Dry Land Agriculture:	Expended 1930	Estimated 1931	Estimated 1932	Increase or Decrease W.F.
Dry land agriculture investigations	$253,355	$230,740	$230,740	---
Central Great Plains Field Station	75,270	100,200	73,080	-27,120
Southern Great Plains Field Station	34,606	35,000	35,000	---
Total	$ 363,231	$365,940	$338,820	$-27,120

The decrease of $27,120 will be met by reduction in the allotment for the development of the Central Great Plains Horticultural Field Station at Cheyenne, Wyoming.

Activities under Appropriation for Dry Land Agriculture.

The problems of agricultural and horticultural development of the Great Plains area, a region classed as semi-arid, are studied at field stations to obtain the fullest possible information concerning soil and climatic conditions throughout the region and the agricultural effectiveness of each of the many different methods of tillage and crop rotations that can be considered as more or less suitable for this region where irrigation is not available.

Field stations are maintained at the following points:

	Allotment 1931		Allotment 1931
Akron, Colorado	$10,500	Ardmore, South Dakota...	$20,780
Tucumcari, N.M.....	9,300	Big Spring, Texas.....	9,175
Mandan, N.D.	45,500	Dalhart, Texas	9,400
Lawton, Oklahoma	9,600	Cheyenne, Wyoming	100,200
Woodward, Oklahoma	52,000	Sheridan, Wyoming	10,540

Specific lines of work of particular interest recently include (a) cultivation and preparation for planting of 240-acre tract for Southern Great Plains field Station, Woodward, Okla., and (b) propagation of plants suitable for shelterbelt planting in the Southern Great Plains.

(r) WESTERN IRRIGATION AGRICULTURE

Appropriation, 1931.	$150,600
Brookhart Act adjustments.	680
Total, 1931	151,280
Budget, 1932	153,940
Increase	3,340

Project Statement

Project Western Irrigation Agriculture:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Western irrigation agricultural investigations	$109,353	$114,280	$116,940	$2,660
Borax investigations	34,850	37,000	37,000	---
Total	$144,203	$151,280	$153,940	$2,660

The increase of $2,660 is submitted for repairs and replacements, as follows;

Newlands (Nevada) Field Station--$500 for replacing work stock and painting and repairing buildings.

Huntley (Montana) Field Station--$800 for painting and repairing buildings.

Belle Fourche (South Dakota) Field Station--$900 for painting and and repairing buildings.

Bard (California) Field Station--$460 for painting buildings.

Activities under Appropriation for Western Irrigation Agriculture.

The agricultural conditions in the arid and semiarid regions of the Western United States are studied to determine by field experiments the crops, rotations, and cropping methods best suited to successful irrigation farming in those regions, and, in cooperation with the Reclamation Bureau of the Department of the Interior and the various State experiment stations interested, to work out methods of improving these conditions.

Field stations are maintained at the following points:

	Allotment 1931		Allotment 1931
Bard, California....	$16,020	Hermiston, Oregon.....	$ 3,300
Huntley, Montana....	15,700	Belle Fourche, South Dakota.	15,760
Mitchell, Nebraska..	12,740	San Antonio, Texas	12,050
Fallon, Nevada.....	13,180		

Specific lines of work of recent interest include (a) investigations relating to injury caused by boron found in irrigation water supplies of southern California and adjoining areas and (b) study of the impairment of productivity of irrigated areas due to accumulation of salts from irrigation waters.

(s) HORTICULTURAL CROPS AND DISEASES

Appropriations, 1931	$1,277,000
Brookhart Act adjustment.	8,706
Total, 1931	1,285,706
Budget, 1932.	1,375,360
Increase	89,654

Project Statement

Project Horticultural Crops and Diseases:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Laboratory of plant pathology	$ 26,570	28,030	28,030	---
Fruit disease investigations	243,935	265,190	285,190	$20,000(1,2)
Diseases of vegetables & ornamentals.	147,465	159,071	159,071	---
Date culture and breeding	63,500	68,925	68,925	---
Citrus breeding and testing.	30,100	30,715	30,715	---
Smyrna fig and crop physiology and breeding investigations.	10,605	10,680	10,680	---
Plant physiological investigations. .	10,800	11,436	26,436	15,000(3)
Fruit and vegetable handling, transportation and storage investigations...	171,480	175,395	175,395	---
Grape production investigations.. . .	29,810	32,310	32,310	---
Fruit production investigations.. . .	49,690	72,497	105,497	33,000(4,5)
Fruit improvement through breeding. .	31,480	33,010	40,664	7,654(6)
Fruit and vegetable utilization . . .	40,320	39,755	53,755	14,000(7)
Truck crop production investigations.	99,380	111,415	111,415	---
Irish potato investigations..	52,510	54,860	54,860	---
Ornamentals and landscape gardening..	36,674	37,925	37,925	---
Nut investigations.	67,540	120,932	120,932	---
Nursery stock investigations.	22,530	33,560	33,560	---
Total	$1,134,389	$1,285,706	$1,375,360	$89,654

The increase of $89,654 is submitted for the following purposes:

(1) $10,000 for investigation of fruit diseases in the Ozarks:

(a) The Ozark region is a well-defined fruit growing area in which the apple predominates, but large quantities of strawberries and grapes are also grown. Peaches formerly were grown extensively in various parts of this region but are relatively less important now than formerly.

Diseases are prevalent and in some seasons greatly reduce the quantity of marketable fruit. More effective control measures are essential to the best interests of the growers.

While there are few if any diseases peculiar to the region, the regional climatic and other environmental conditions affect their seasonal development. These regional responses of the diseases must be known in order to work out effective spray schedules or other methods of control.

(b) The plan of the Department will be:

To make localized studies of the seasonal development of the different diseases in representative sections of the region; work out spray schedules, or times for applying other control measures; and advise the growers as to when the treatments should be given.

(c) Cooperation:

Work in a similar field is now in progress with the Arkansas Agricultural Experiment Station. It is to be anticipated that this will be expanded and similar cooperative relations established with the Missouri Agricultural Experiment Station and the Missouri Fruit Experiment Station.

(d) Present Work:

As indicated above, fruit disease investigations in cooperation with the Arkansas Agricultural Experiment Station are in progress. This work relates mainly to a certain few of the more serious diseases of the peach and apple.

(2) $10,000 for developing and testing new spray materials for fruit production.

(a) Most of the spray materials now in use have several disadvantages. Although certain ones are effective in controlling diseases, still in many cases they seriously injure either the foliage or the fruit. Growers are finding it very difficult to produce fruit unblemished by spray material in many parts of the country. Orchardists, spray material manufacturers and fruit journals are urging that new spray materials which will control pests without injury to tree or fruit be developed. The fruit industry in the United States has an annual value of approximately $630,000,000. Losses through decay from improper spraying amount to many millions annually. If possible, spray materials should be developed which can be used during hot, dry weather or cloudy and rainy weather in all parts of the country without fear of injury to the tree and fruit.

(b) The plan of the Department will be:

To test out under various climatic conditions any new spray materials developed by the manufacturers, but particularly to develop, if possible, new chemical sprays which will prevent decay without injury to tree or fruit and without leaving detrimental spray residue on the fruit. It will be necessary to develop such spray materials in laboratories and then use them in field trials in various parts of the country to determine their value.

(c) Cooperation:

This work will be conducted in cooperation with orchardists and fruit growers' organizations who will cooperate in furnishing the field plots for spraying trials. The work will be done in cooperation with the Bureau of Entomology which will assist in all tests dealing with the insect phases of the problem. The state experiment stations in which work will be done will also be asked to cooperate.

(d) Present Work:

A small amount of work in attempting to determine desirable new spray materials for the control of certain peach diseases in the Ozark region is in progress. However, it is impossible to expand the work and to determine new spray materials for other fruits under various climatic conditions with our present funds.

(3) $15,000 to determine the plant physiological and biochemical factors which influence the growth, development and formation of horticultural plants and crops.

(a) Thorough studies relative to factors influencing plant pigment and color formation in vegetables and fruits are of great importance in producing superior products. The interrelation of cultural practices as influencing the internal composition of the tree or plant and thus the size, color and maturity of the products produced should be determined. A thorough study of the effect of temperature, date of planting, fertilizer and cultural methods on the internal composition of the plant and a thorough study of this composition as influencing the quality and preservation of the product should be determined. Only by having further knowledge relative to the factors which influence fruit, vegetable and flower growth and fruit development can sound practice be developed. Such studies can be used as a basis for determining why certain plant responses occur and to determine methods to use to secure the desired response.

(b) The plan of the Department will be;

To study by biochemical methods, or otherwise, the physiological condition of plants which are making different responses for the purpose of determining under what environmental condition or conditions, or under what method or practice in plant culture, the different plant responses occur. To determine methods of producing fruits of larger size and higher color which will have greater economic value. To determine the influence of various cultural practices, including fertilizers, upon the firmness, texture, keeping and shipping qualities of fruits, vegetables and flowers.

(c) Cooperation:

This work will be conducted in cooperation with fruit, vegetable and flower organizations who will furnish certain land and greenhouses for field plots. Several projects within the Bureau will cooperate in the problem.

(d) Present Work:

Some work relative to the determination of plant pigments and the carbohydrates of vegetables is in progress at the present time. Preliminary work relative to the influence of fertilizers on the quality of canned products is being investigated. It is impossible, however, to expand this work and conduct thorough researches which would be of great value to the horticultural industry.

(4) <u>$25,000 for the investigation of the many problems concerned in the production of annual crops of high quality fruits, such as apples, peaches, pears, plums, cherries, etc.</u>

(a) The production of steadier annual yields of high quality fruit will do much toward solving the marketing problem. Larger yields per tree or acre of orchard fruits will lower the cost of production and increase the margin of profit. The problem of securing annual yields instead of biennial yields is of great importance to the fruit industry. The annual value of the products of the deciduous fruit industry in the United States is between $300,000,000 and $350,000,000. This problem is acute among the pear and prune growers of the Northwest, the peach and early apple growers in the Middle West and the large horticultural interests throughout the New England States.

The effect of different soil management, pruning, thinning and fertilizer practices on the color and firmness of the fruit, as well as its respiration and shipping and keeping quality during transportation within this country and abroad, should be determined. The readjustment of varieties and the determination of satisfactory regions for fruit production need thorough study.

(b) <u>The plan of the Department will be:</u>

To conduct experimental field trials, determining the effect of the various cultural, fertilizer and pruning practices in the main fruit regions in the United States. Careful records will be secured of the effect of various production methods on the annual yield of crops and quality of fruit. Determination of the keeping quality and shipping quality of the fruit as affected by various production methods in different parts of the country will be studied. This work will be done in cooperation with fruit growers organizations and cold storage plants throughout the country.

(c) <u>Cooperation:</u>

This work will be conducted in cooperation with representatives of the state experiment stations in those states where the work will be carried on. Orchards for the conduct of this work will be furnished through the cooperation of fruit growers' organizations and orchardists. The Division of Transportation and Storage Investigations in the Bureau will cooperate in all studies of storage and shipping tests.

(d) <u>Present work:</u>

A relatively small amount of fruit production investigations along the lines indicated is now being carried on by the Bureau. Some preliminary investigations are being conducted in orchards comparatively close to Washington in the State of Maryland, and a small amount of work is in progress in one section of California. Funds, however, are too limited to allow expansion of this work, and it is impossible to meet the needs of the industry in other parts of the United States with the present funds.

(5) $8,000 for investigations relative to citrus irrigation in the United States:

(a) There is an urgent need for thorough investigations relative to the irrigation of citrus orchards for the increased production of high quality fruit which will carry well to market. The annual value of the citrus crop in the United States varies from $150,000,000 to $200,000,000. The water requirements and the economical use of water for various fruit species in different sections of the country should be determined. It is essential to know the amount of water needed and the best time for its application. The effect of water on the quickness of bringing trees into bearing, their total size and their fruit-bearing capacity are fundamental questions having an important economic bearing. The effect of water at different times of the year on the quality of the fruit and its ability to remain in storage and be transported long distances is very little understood.

(b) The plan of the Department will be:

To determine the amount of water required and the best time of application upon different soil types in the United States. To determine the effect of irrigation upon fertilizer requirements. To determine the effect of different soil management methods on irrigation requirements. To determine the effect of different root stocks upon irrigation requirements. Careful studies will be made of tree growth, fruit bud development, fruit set, fruit size and rate of growth. The influence of water on the metabolism and internal composition of the tree as affecting tree growth and fruit development will be studied. The influence of water as affecting the rest period of trees, their naturity and resistance to cold will be determined. The quality of fruit as influenced by the size and shape of flesh cells and texture of fruit will be determined. The influence of water on the respiration, breakdown of fruit, susceptibility to mechanical injury and the entrance of disease organisms will be considered. Careful cold storage and shipping tests will be made.

(c) Cooperation:

Investigations will be conducted in cooperation with fruit growers' organizations and the state experiment stations in such states as Florida, Texas and California. Work will also be in cooperation with the Bureau of Public Roads, Division of Agricultural Engineering, which will conduct the engineering phases of the problem, for which an item of $10,000 increase has been included in the 1932 Budget under the appropriation for irrigation in that Bureau.

(d) Present Work:

There is at present no work being done by this Bureau relative to the time of application or the quantity of water applied to citrus production in relation to yield or quality of fruit.

(6) <u>$7,654 is needed for the origination and development through breeding of more desirable varieties of such fruits as the apple, peach, pear, plum and cherry</u>.

(a) These industries have assumed very large proportions on the Pacific slope, fruit being produced for the fresh market as well as for canning and drying. Both the growers and canners are urging that investigations be conducted to develop more satisfactory varieties for shipping and canning. The annual value of the deciduous fruit crop in California alone is between $30,000,000 and $35,000,000. The production of better varieties will result in less loss through shipping and deterioration and should be of great economic importance to the horticultural industry in California.

(b) <u>The plan of the Department will be</u>:

To endeavor to develop new varieties of apples, peaches, pears, plums and cherries through careful breeding and selection. The best varieties now in use will be used as parents in making crosses in order to combine the desirable characters and eliminate the undesirable ones. The new hybrid seedlings will be grown in California and tested under orchard conditions in cooperation with the growers and canners in that region. Varieties developed will be studied from the standpoint of large production of high quality fruit, resistance to disease, good shipping qualities and desirable canning and drying qualities. When satisfactory varieties are developed they will be used to supplant those now in use.

(c) <u>Cooperation</u>:

This work will be conducted in cooperation with the State Experiment Station and Stanford University. The industries will provide canning and drying facilities in order to test the suitability of the hybrids. The Transportation and Storage unit of the Bureau will cooperate in such tests.

(d) <u>Present work</u>:

At present a limited amount of breeding work, particularly with canning and drying varieties of peaches, is being conducted in cooperation with Stanford University. Funds are so limited, however, that it is impossible to expand the work to include the other fruits or to properly conduct, on a sufficiently large scale, the work which is now under way.

(7) $14,000 for investigations on the handling, storage, and utilization of fruits and vegetables by frozen pack methods:

(a) The frozen pack industry was established in the Pacific Northwest a few years ago where a considerable quantity of strawberries and raspberries have been packed in barrels for a number of years. Within the past two or three years Eastern and Southern interests have taken up this method of handling, storing and utilizing berries, peaches, and other fruits. A further development is occurring in the Pacific Northwest and other sections where small containers are being used and vegetables are also being frozen. In the aggregate the frozen pack industry now represents an investment of many million dollars and a rapidly growing annual business. It furnishes an added outlet for farmers and fruit growers in highly specialized producing areas, and at the same time furnishes a means of getting better flavored fruit and vegetables into the consumers' hands and to the ice cream industry, jam factories, etc.

The rapid expansion of the industry has brought many problems that require scientific investigation before commercial operations can proceed upon a sound and assured basis. Losses of very considerable magnitude have already been sustained because of lack of adequate information which the industry is now looking to the Department of Agriculture to furnish. Investigations of a limited character have been in progress by the Bureau of Plant Industry for the past six years but funds now available for this work are inadequate to meet the growing need. It is considered necessary to establish and equip a laboratory immediately in the Pacific Northwest to give its entire attention to the problems of this industry.

(b) The plan of the Department will be:

To determine the most desirable varieties adapted to preservation by frozen pack: to determine the best stage of maturity for harvesting the crop: the best methods of handling the crop in the field and at the packing plant: the most desirable types of pack: the best methods of refrigeration: and the causes and prevention of spoilage during storage and in subsequent handling.

(c) Cooperation:

The field studies will be conducted in cooperation with the farmers, fruit growers and packers in important producing areas. The refrigeration studies will be conducted in cooperation with various commercial packers and cold storage operators. All of these studies will be conducted under the leadership of scientists in the Office of Horticultural Crops & Diseases.

(d) Present Work:

At the present time this problem is being given inadequate attention since it is possible to assign personnel temporarily only at seasonal intervals and inadequate laboratory facilities are available, whereas continuous attention and a well equipped laboratory

are required. Under present conditions other lines of investigation upon which the specialists are engaged must either be abandoned or suffer serious neglect through the necessity of giving some time to frozen pack studies.

Activities under Appropriation for Horticultural Crops and Diseases

Investigations are conducted to determine the best methods of culture, propagation, breeding, selection, disease control and related activities as affecting the most profitable production of fruits, nuts, vegetables, ornamentals, nursery stock and related plants. The inter-relation of various orchard practices and problems concerned with the nutrition and physiology of the various horticultural plants are studied. Investigations for determining the best methods of harvesting, packing, shipping, storing and utilizing horticultural products are also conducted, including the physiological and related changes of perishables during marketing and storage.

Laboratory of plant pathology. The problems dealt with involve laboratory, greenhouse, and field experiments with bacterial diseases of crop and ornamental plants, such as crown gall, perennial apple canker, and bacterial blight of beans and peas.

Fruit diseases. Investigations are conducted on the fungous, virus, and physiological diseases of fruits and fruit trees, including citrus and sub-tropical fruits, grapes, and small fruits, fruit rots and decays, and diseases of the pecan and other nuts, with a view of their control by spraying, disinfection, eradication and other methods.

Diseases of vegetables and ornamentals: Investigations are conducted on the fungous and virus diseases of vegetables and ornamental crops to determine their cause, conditions under which they develop, localities where they are most serious, methods of disease transmission and to develop control measures.

Date culture and breeding: The purpose of this work is to establish date culture on a satisfactory commercial basis in those regions of the United States where soil and climate are favorable and to develop by breeding varieties better suited than imported varieties.

Citrus breeding and testing: Breeding and cultural experiments are carried on with citrus fruits to secure new fruits equal in quality to the standard varieties now grown commercially but possessing a great degree of resistance to cold, disease, and boron injury.

Smyrna fig and crop physiology and breeding: Experimental plantings of Smyrna figs, pistaches and other special crops are made with a view to establishing their culture in this country.

Plant physiological investigations: The physiological processes in plants are investigated from the physical and chemical standpoint to furnish fundamental knowledge for work in breeding, increasing production, disease and frost resistance, and in handling and storage methods.

Fruit and vegetable handling and transportation and storage: These studies include experiments to determine the effect of gases on ripening and in storage plants, the removal of spray residues, methods of controlling car temperatures to prevent freezing or overheating and the frozen pack method of preserving.

Grape production: Vinifera grapes for California and Muscadine grapes for the southeastern States are studied to develop by breeding superior varieties and to improve cultural practices.

Fruit production: The type of growth associated with high production and the fertilizer treatment, water requirement and other cultural factors in growing tree fruits are under experimentation, as well as production studies of the small fruits such as strawberries, raspberries and blackberries.

Fruit improvement through breeding and selection: By breeding and selection the desirable characteristics of chance seedlings of peaches, plums, apples and other fruits are combined in single individuals and bud variations of citrus varieties are propagated to develop seedless oranges and other superior strains.

Fruit and vegetable utilization: These experiments include study of the fundamental factors involved in preservation of food by canning, the value of different varieties with respect to quality of the final product, and study of microbiological problems arising from frozen packing of berries and other fruits.

Truck crop production: These investigations include improvement in cultural practices of vegetables, improvement by breeding of superior varieties, production on muck soils, and field tests for the purpose of establishing variety standards and variety descriptions.

Irish potato investigations: Experimental work is carried on in different regions with a view to developing more desirable commercial varieties and to improving cultural practices.

Ornamentals and landscape gardening: Studies of adaptability for planting in various regions are made of different varieties of annuals, herbaceous perennials, roses, dahlias, and chrysanthemums, together with arrangement of plants and trees about the farmstead and roads. Experiments with tulips, hyacinths, narcissus and other bulbs are under way with a view to aiding the rapidly developing bulb-growing industry of the United States.

Nut investigations: This work includes experiments on culture and breeding of almonds, walnuts and filberts in California and the Northwest and with pecans in various sections of the Southern States.

Nursery stock investigations: This work consists of propagation of fruit trees and roses and the testing of stocks which appear superior.

Field Stations maintained by Horticultural Crops and Diseases.

In addition to cooperative activities with the State Agricultural Experiment Stations, Bureau of Indian Affairs of the Department of the Interior, and others, field stations and laboratories are maintained at the following points:

Chula Vista, California.
Fresno, California.
Indio, California.
Lamanda Park, California.
Los Angeles, California.
Oakville, California.
Riverside, California.
Sacramento, California.
Greeley, Colorado.
Bradenton, Florida.
Coconut Grove, Florida.
Eustis, Florida.
Orlando, Florida.
Redland, Florida.
Albany, Georgia.
Fort Valley, Georgia.
Philema, Georgia.
Thomasville, Georgia.
Chicago, Illinois.
Vincennes, Indiana.
Shreveport, Louisiana.
Presque Isle, Maine.
Bethesda, Maryland.
Toms River, New Jersey.
New York City, N. Y.
Chadbourn, North Carolina.
Hood River, Oregon.
Bellingham, Washington.
Wenatchee, Washington

Some of the specific lines of work of particular interest recently include (a) breeding and selection of improved types of berries, (b) extensive planting of pecan trees at the pecan station at Shreveport, La., (c) beginning the propagation in Texas of rain-resistant dates secured from Persia, (d) investigations of perennial canker of apple in the Northwest, (e) descriptions of type varieties of peas, tomatoes, and cabbage, and (f) heater-car investigations to prevent freezing of fruits and vegetables in transit.

(t) PHONY PEACH ERADICATION

Appropriation, 1931	$85,000
Brookhart Act adjustments . . .	---
Total, 1931	85,000
Budget, 1932.	85,180
Increase.	180

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Phony peach eradication . . .	$83,172	$85,000	$85,180	---	$ 180

The increase of $180 is for Under-average Salary Adjustments.

Activities under Appropriation for Phony Peach Eradication

In cooperation with the State Board of Entomology of Georgia, the Bureau conducts a campaign for the eradication of the phony disease of peaches, an infectious condition of the root system resulting in dwarfed growth of the tree and abnormally small and poorly flavored fruit. Incidental inspections are made in Alabama, Mississippi, Louisiana, Arkansas and Tennessee where the disease has been found to occur sparingly.

During the past year nearly 12,000,000 peach trees were inspected, more than 11,000,000 of which were in Georgia. Of this number 87,696 trees in Georgia, 613 in Alabama and 139 in Mississippi were definitely diagnosed as having the phony disease. These trees are being removed by the State authorities. More recently scattering infections have been found in North Carolina, South Carolina and Texas. Under informal cooperation preliminary surveys of peach areas are under way in these States where infections have been found.

(u) GARDENS AND GROUNDS

Appropriation, 1931	$97,740
Brookhart Act adjustments . . .	380
Total, 1931	98,120
Budget, 1932.	99,080
Increase	960

Project Statement

Project Gardens and Grounds:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	 U.A.S.
General care of greenhouses and grounds	$101,510	$98,120	$99,080	---	$ 960

The increase of $960 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Gardens and Grounds

A range of thirty-two greenhouses is maintained, providing for experimental work with a wide range of plants, including seed testing, propagation and general hybridization, and pathological studies carried on by different divisions of the Bureau. The propagation of plants for ornamenting the grounds of the Department, the lighting of the grounds and the removal of refuse from the buildings is provided for in this item.

In addition to the special greenhouse services provided, two general exhibitions are held annually. In the Chrysanthemum Show, November, 1929, 6,000 chrysanthemum plants in 601 varieties and 83 seedling plants were exhibited which had originated in these gardens. In the Amaryllis show March, 1930, 2,000 plants were exhibited.

(v) ARLINGTON EXPERIMENT FARM

Appropriation, 1931	$60,000
Brookhart Act Adjustments	600
Total, 1931	60,600
Budget, 1932	61,020
Increase.	420

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
. .	$85,300	$60,600	$61,020	---	$ 420

The increase of $420 is for Under-average Salary Grade Adjustments.

Activities under Appropriation for Arlington Experiment Farm.

A highly improved 400-acre tract is maintained, near Washington, D. C., provided with laboratories, greenhouses, barns, shops, and other buildings, furnishing facilities for conducting experiments covering a wide range of research work principally for the Bureau of Plant Industry, but also for Bureaus of Chemistry and Soils, Public Roads, and other branches.

(w) FOREIGN PLANT INTRODUCTION

Appropriation, 1931	$222,000
Brookhart Act adjustments	1,460
Total, 1931	223,460
Budget, 1932.	228,140
Increase.	4,680

Project Statement

Project Foreign Plant Introduction:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Foreign explorations	$ 42,439	$ 52,055	$ 52,055	---
Experimenters' service	160,739	163,177	167,857	$4,680
Plant geography.	8,228	8,228	8,228	---
Total	$211,406	$223,460	$228,140	$4,680

The increase of $4,680 is submitted for alterations and repairs as follows:

(a) Extension to Lath House at Chapman Field, Florida. $1,000

To properly handle part of the material being propagated at our Chapman Field Station, an extension to the lath house is essential. Owing to conditions of soil and climate at the Station a permanent collection of plants must be maintained to supply seed, cutting material and budwood, and plants for this purpose have to be grown under lath house conditions for at least three years. Their increasing size during these years takes a disproportionate amount of space from propagation work for experimental distribution. This has to be carried on in the lath house.

(b) Repairs, alterations or additions to greenhouse at Chico, $3,680

Our work at Chico is seriously handicapped through lack of an adequate service shed. The present structure is a fire hazard, old and small, and is not suited to the necessary operations which must be carried on, but repairs and alterations however, can be carried out, which will effect a temporary remedy for the existing conditions.

Activities under Appropriation for Foreign Plant Introduction

By means of a system of cooperative contacts maintained with institutions and individuals in all parts of the world, and to a limited extent by special explorations, plant material is imported and tested out at the stations of the Department, by State and other institutions, and by individual cooperators, with a view to finding and establishing in the United States new and valuable economic crops and ornamentals. Also, investigations are carried on of the relation of crop distribution to climatic and soil conditions, and studies are made of the important problems in plant production from a geographical point of view.

Field stations are maintained at the following points:

Chico, California	Savannah, Georgia
Coconut Grove, Florida.	Glenn Dale, Maryland.

Specific lines of work of particular interest recently include (a) an expedition to Turkestan to secure wilt-resistant alfalfas, (b) planting of many thousand hybrid azalea seedlings for the creation of more hardy types, and (c) placing with experimenters 19,000 bamboo plants for testing.

(x) FORAGE CROPS and DISEASES

Appropriation, 1931	$235,000
Allotment, Dairying and soil improvement, South Carolina Experiment Station	8,675*
Allotment, Special Corn Borer Appropriation.	30,000*
Brookhart Act adjustments	700
Total, 1931.	274,375
Budget, 1932	279,375
Increase	5,000

*Transfer to this appropriation proposed in Budget, 1932.

Project Statement

Project Forage Crops and Diseases:	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.
Alfalfa investigations	$54,159	$55,749	$55,749	---
Clovers and miscellaneous legumes	53,579	55,079	55,079	---
Soybeans	23,608	24,306	24,306	---
Sorghums	11,419	11,778	11,778	---
Pastures and ranges.	35,443	46,374	46,374	---
Forage diseases.	14,550	14,927	14,927	---
Fine turf.	7,238	7,454	7,454	---
Acid tolerant legumes.	---	20,033	25,033	5,000
Corn borer in forage crop regions	29,504	30,000	30,000	---
Dairying and Soil Improvement, South Carolina Experiment Station	---	8,675	8,675	---
Totals	229,500	$274,375	$279,375	$5,000

The increase of $5,000 is for a study of acid tolerant legumes in the Ozarks:

(a) The Ozarks region covers most of southern Missouri and a large portion of northern Arkansas, extending from Arkansas to a certain extent into Oklahoma. Much of this region is composed of relatively poor and acid soil. Besides this territory there is a large region in southern Illinois and in eastern Kentucky and Tennessee, where the soils, although of different origin, are equally as poor and acid as those in the true Ozarks. A conservative estimate indicates that there are more than half a million acres of this general type of soil. Throughout this area fair crops of the standard forage crops, alfalfa and red clover, can be produced when sufficient lime and fertilizer are used. The expense of liming these rolling lands is, however, often prohibitive.

If the productivity of the soil and the prosperity of agriculture of this region is to be improved, some crops must be found that will give a fair return for the labor involved without liming.

The work proposed is directed, therefore, to an experimental study of any and all plants that may conceivably grow upon soil types of this region without liming and that can be used for the production of forage or grazing. Incidentally, of course, any crop that is useful as a forage crop will automatically improve the soil to a certain extent and will result in increased yields of the succeeding crops.

(b) The plan of the Department will be:

To study the various species considered promising as forage crops for this region, and whenever such are found, to make detailed experiments with them to determine their usefulness for hay, for grazing, or for soil improvement. Efforts will at first be concentrated upon such crops as are already known to grow upon the soils in question and to study the cultural problems and utilization of such crops.

(c) Cooperation:

The proposed work will be carried on in cooperation with the Missouri Agricultural Experiment Station at one of the field stations maintained in the Ozarks. It is expected that the Missouri Agricultural Experiment Station will supply the land, buildings, and the tools, and that the Bureau of Plant Industry will pay for local labor and necessary unusual supplies and fertilizers, as well as to supervise the work to be carried on.

(d) Present Work:

Work similar to that proposed for the Ozarks is going on through an appropriation for the fiscal year 1931 in the southeastern states. No work of any kind upon this problem has as yet been undertaken west of the Alleghanies.

Activities under Appropriation for Forage Crops and Diseases

Field studies are conducted throughout the United States and cooperative relations are maintained with nearly all of the State experiment stations and insular experiment stations, pertaining to the production, improvement and control of diseases of all crop plants used for forage either as hay, fodder, silage, or pasture, and incidentally of all plants used for green manuring, turf production and soil binding.

Cooperative experiments are conducted at State agricultural experiment stations, but no independent field stations are maintained.

Specific lines of work of especial interest recently are (a) study of causes of alfalfa failures in the Mississippi Delta and Black Lands of Alabama and Mississippi, (b) field tests of imported red clover seed, and (c) green manuring and pasture studies in different regions.

(y) BIOPHYSICAL LABORATORY

Appropriation, 1931	$36,000
Brookhart Act adjustments . . .	420
Total, 1931	36,420
Budget, 1932.	36,720
Increase.	300

Project Statement

Project Biophysical Laboratory:	Expended 1930	Estimated 1931	Estimated 1932	Increase W. F.	 U.A.S.
Investigations of the mechanism of heredity and the factors influencing plant growth . . .	$35,606	$36,420	$36,720	---	$ 300

The increase of $300 is for Under-average Salary Grade Adjustments.

Activities under appropriation for Biophysical Laboratory

Field and laboratory investigations are carried on upon the growth and reproduction of various crop plants with especial reference to the influence of physical conditions. Special studies have been made of the various systems of applying electric currents to plants which have been claimed, especially by several European investigators, to cause very great increase in crop growth. Laboratory experiments with paper mulch in stimulating the growth of plants indicate that changes in the composition of the soil atmosphere determine the effect of the mulch. Field work with paper and other types of mulch is also under way.

Specific lines of work of interest recently are (a) growing of 150 varieties of maize from the various Indian tribes to preserve these varieties from extinction and (b) preliminary experiments with permanent mulches such as brick, cement, or lava blocks, which appear promising.

(g) NATIONAL ARBORETUM

Appropriation, 1931	$ 30,000*
Brookhart Act adjustments	------
Total, 1931	30,000
Budget, 1932.	30,000

* Transferred from Miscellaneous Section of the Act.

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Increase W.F.	Increase U.A.S.
Maintenance of National Arboretum	$ ----	$30,000	$30,000	---	---

Activities under Appropriation for National Arboretum

The Act of March 4, 1927, authorizing the establishment of the National Arboretum, provides that, in order to stimulate research and discovery, the National Arboretum shall be under competent scientific direction, and that it shall be administered separately from the agriculture, horticultural, and forestry stations of the Department of Agriculture, but shall be so correlated with them as to bring about the most effective utilization of its facilities and discoveries. With the $300,000 already appropriated for purchase of land 190 acres of land have been purchased and 78 acres additional are being acquired through condemnation proceedings.

This appropriation of $30,000 is being used for purchase of equipment, construction of necessary toolsheds, beginning of the preparation of a topographic map and the identification of soil types, and planning for drainage of certain areas and for the establishment of a water supply system; also for beginning the establishment of a system of roads and for fencing and otherwise protecting the arboretum area.

ROOT ROT ERADICATION

Appropriation, 1931	$1,725
Budget, 1932	- - -
Decrease.	1,725

Project Statement

Project	Expended 1930	Estimated 1931	Estimated 1932	Decrease
Root Rot Eradication	$ 23,275	$1,725	- - -	- $1,725

This decrease is due to the discontinuance of the appropriation of $25,000 for root-rot control and eradication within the boundaries of the U. S. experimental date garden, Indio, California, carried in the First Deficiency Act, 1930, and available for the fiscal years 1930 and 1931.

Activities under Appropriation for Root Rot Eradication

Disinfection with a solution of formalin of the area infected at Indio, California, was accomplished during the latter part of the fiscal year 1930, and it is believed that the fungus has been completely eradicated from that area. Observations will be made during the current year to detect any reappearance of the disease in that area.

- - - - - - 0 - - - - - -

Note: - Also see Miscellaneous Section for "Special Corn Borer Research," "South Carolina Experiment Station," and "National Arboretum".

(Continued in Volume 2, page 139)